FM 23-33

66—MM HEAT ROCKET M72A1 and M72A2 (LAW)

HEADQUARTERS, DEPARTMENT OF THE ARMY

Field Manual
No. 23-33

*FM 23-33

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 20 April 1979

66-MM HEAT ROCKET M72A1 and M72A2 (LAW)

CHAPTER 1. INTRODUCTION

CHAPTER 2. CONTROLS, SIGHTS, AND OPERATION OF THE LAUNCHER

*This manual supersedes FM 23-33, 10 July 1970, including all changes.

CHAPTER 3. ROCKET AMMUNITION

CHAPTER 4. MAINTENANCE AND INSPECTIONS, DECONTAMINATION, AND DESTRUCTION

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The word "he" or "his" in this publication is intended to include both the masculine and feminine genders and any exception to this will be so noted.

Users of this publication are encouraged to submit recommended changes or comments to improve the publication. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be prepared on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to the Commandant, United States Army Infantry School, ATTN: ATSH-I-V-PD, Fort Benning, Georgia 31905.

CHAPTER 1
INTRODUCTION

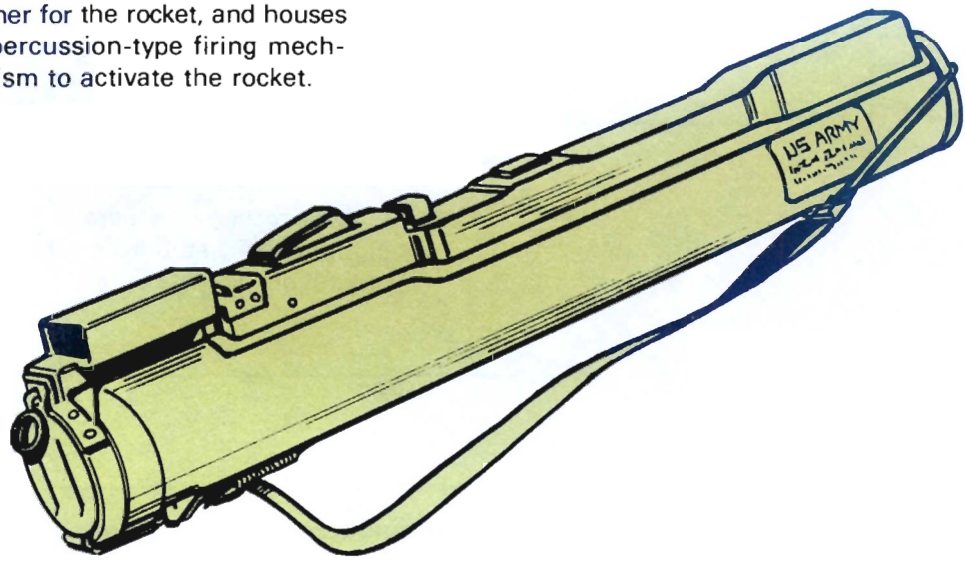
Section I.
GENERAL

PURPOSE AND SCOPE

This manual provides guidance for using the 66-mm high explosive antitank (HEAT) rocket M72A1 and M72A2, a light antitank weapon (LAW). It contains information covering characteristics, nomenclature, functioning, and employment, and includes a training program designed to develop, evaluate, and maintain the soldier's proficiency with the LAW.

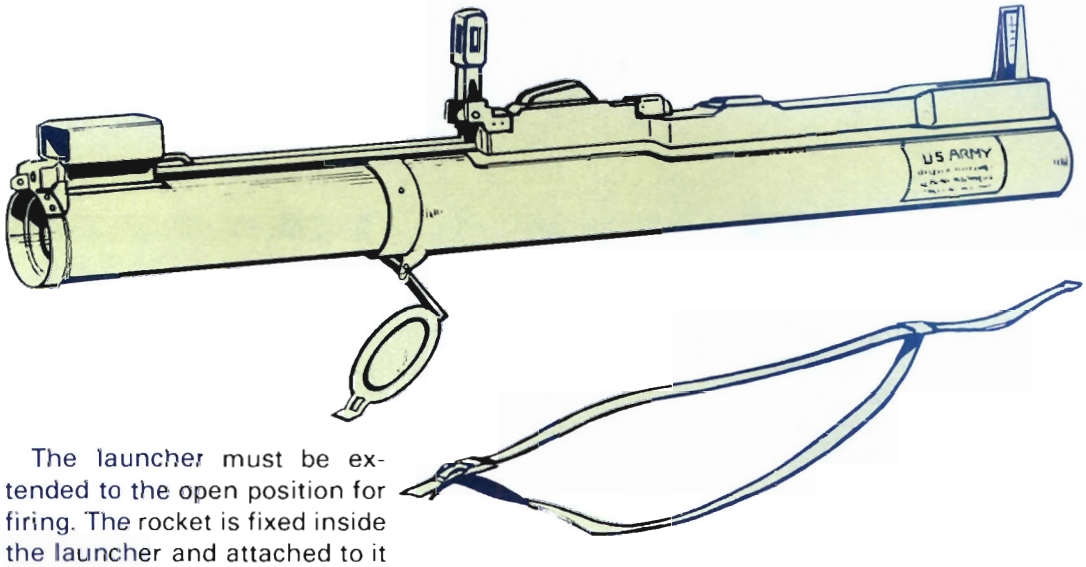
GENERAL CHARACTERISTICS

The LAW is a lightweight, self-contained antitank weapon consisting of a rocket packed in a launcher. The launcher serves as a watertight packing container for the rocket, and houses a percussion-type firing mechanism to activate the rocket.



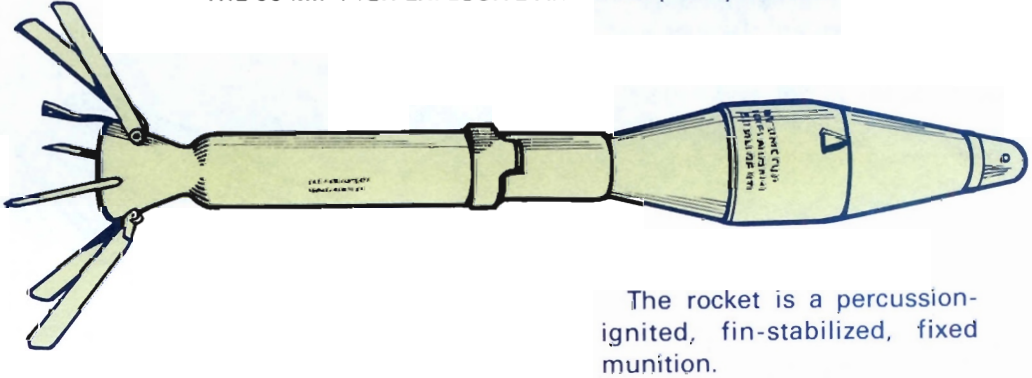
ROCKET LAUNCHER, CLOSED POSITION

ROCKET LAUNCHER, OPEN POSITION



The launcher must be extended to the open position for firing. The rocket is fixed inside the launcher and attached to it by the igniter.

THE 66-MM HIGH EXPLOSIVE ANTITANK (HEAT) ROCKET



The rocket is a percussion-ignited, fin-stabilized, fixed munition.

The M27A2 has a greater armor penetrating capability than the M72A1.

Section II.
DESCRIPTION AND TABULATED DATA

DESCRIPTION

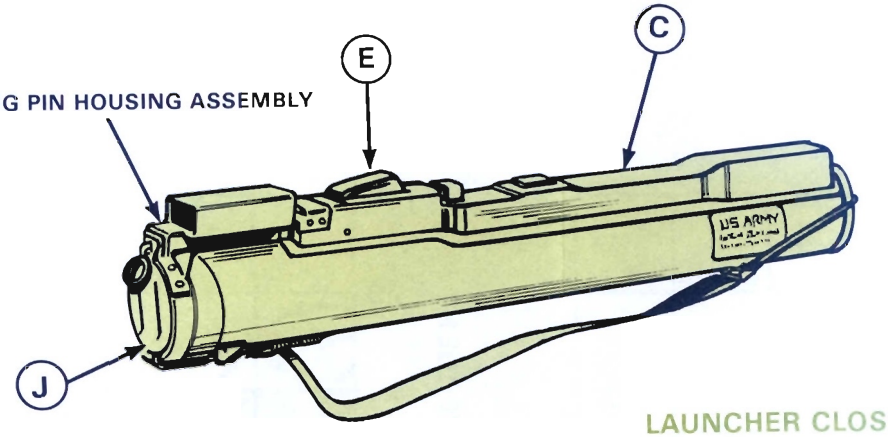
LAUNCHER. The launcher is made of two tubes; one fits inside the other. The inner tube (A) is guided by a channel assembly (B), which rides in an alinement slot in the trigger housing assembly (C). It will extend telescopically along the channel assembly (B), which houses the firing pin rod assembly and locks the launcher in the extended position through the detent lever assembly (D). The firing pin rod assembly locks under the trigger assembly (E) and cocks the weapon when the launcher is extended. The outer tube (F) has the following parts affixed to it: the trigger housing assembly (C) located on the upper surface, trigger assembly (E), trigger arming handle (G), rear sight assembly (H), front sight assembly (I), and rear cover (J).

(SEE CHAPTER 3 ROCKET AMMUNITION)

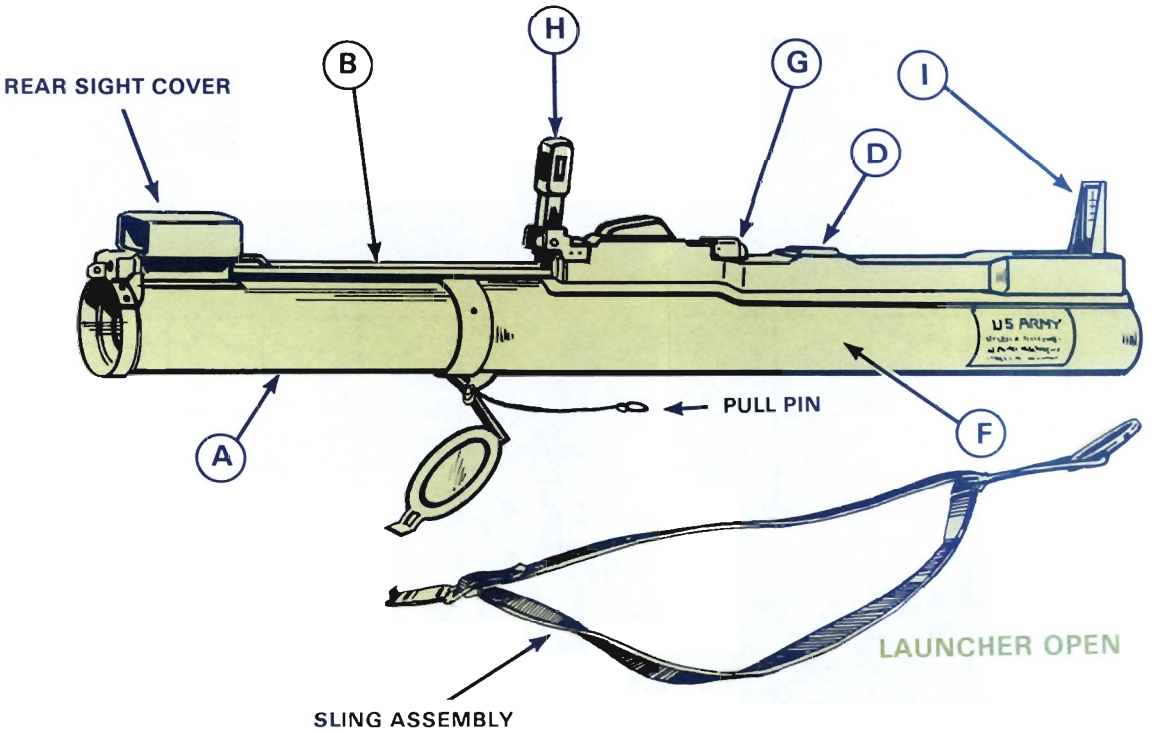
ROCKET. The rocket consists of a 66-mm HEAT warhead, a point-initiating-base detonating fuze, and a rocket motor. Attached to the rear of the rocket motor are six spring-loaded fins which are folded forward along the motor when the rocket is in the launcher. When ignited, the propellant in the rocket motor burns and builds up gas pressure. The gas pressure moves the rocket to the target.

TABULATED DATA

LAUNCHER	M72A2	M72A1
LENGTH (FIRING POSITION)	89.3 CM (35.16 IN)	89.3 CM
LENGTH (CLOSED POSITION)	65.6 CM (25.77 IN)	65.6 CM
WEIGHT (COMPLETE SYSTEM)	2.36 KG (5.2 LB)	2.13 KG
WEIGHT (LAUNCHER ONLY)	1.36 KG (3.0 LB)	1.13 KG
FIRING MECHANISM	PERCUSSION	PERCUSSION
SIGHTS (BOTH MODELS)	FRONT	RETICLE GRADUATED IN 25-METER RANGE INCREMENTS.
	REAR	PEEPSIGHT WHICH ADJUSTS AUTOMATICALLY TO TEMPERATURE CHANGE.



LAUNCHER CLOSED

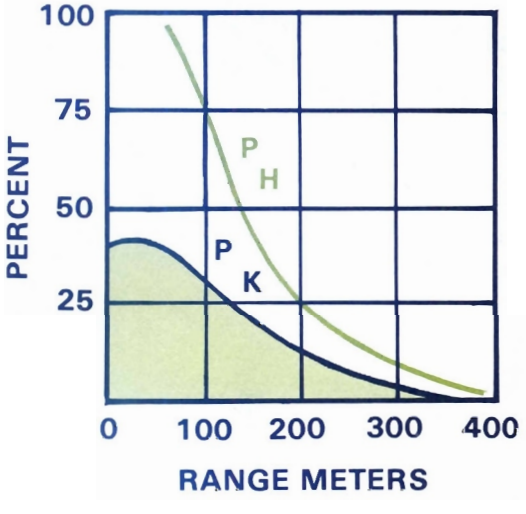


LAUNCHER OPEN

HIT PROBABILITY DATA ON DIFFERENT TARGET ASPECTS FOR THE M72A2 LAW

FIRST ROUND HIT AND KILL PROBABILITIES AGAINST AN OPFOR TANK (AMSAA DATA)

1



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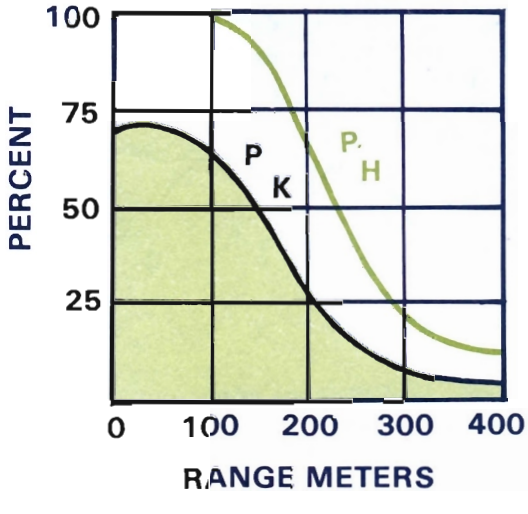

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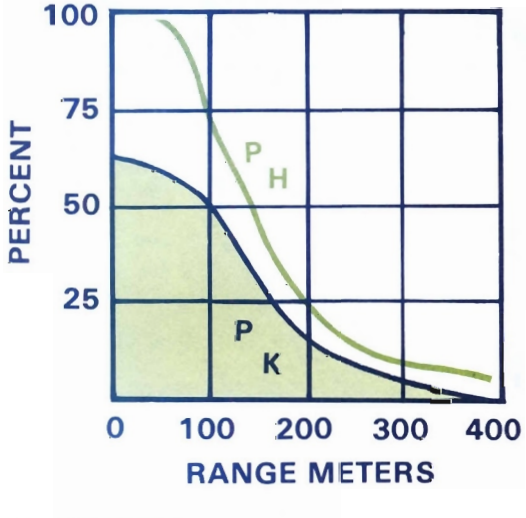

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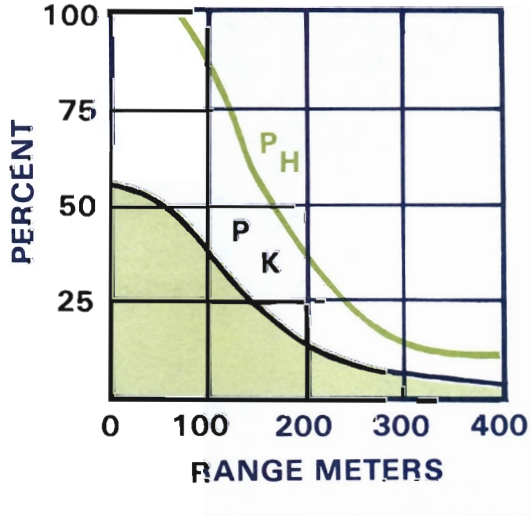
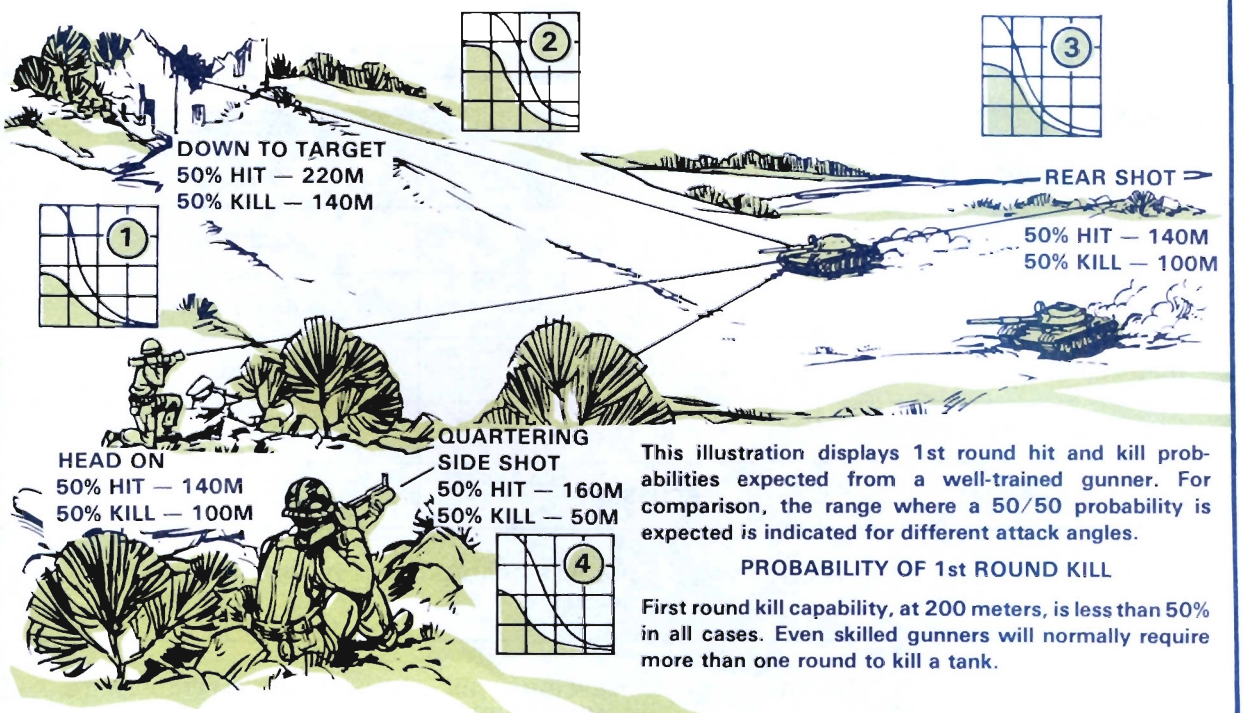


TABULATED DATA

ROCKET	M72A2	M72A1
LENGTH	50.8 CM (20 IN)	50.8 CM
WEIGHT	1.8 KG (2.2 LB)	1.0 KG
MUZZLE VELOCITY	144.8 M/SEC (475 FT/SEC)	144.8 M/SEC
MINIMUM RANGE	10 METERS (APPROX)	10 METERS (APPROX)
MAXIMUM RANGE	1000 METERS (APPROX)	1000 METERS (APPROX)
THE RANGES AT WHICH A 0.5 PROBABILITY OF HIT ARE ACHIEVED IS AS FOLLOWS (BOTH MODELS):	STATIONARY TARGET	200 METERS
	MOVING TARGET	165 METERS

NOTE: Probability of hit decreases rapidly at ranges beyond 250 meters; therefore, it is recommended that targets not be engaged beyond 250 meters.



This illustration displays 1st round hit and kill probabilities expected from a well-trained gunner. For comparison, the range where a 50/50 probability is expected is indicated for different attack angles.

PROBABILITY OF 1st ROUND KILL

First round kill capability, at 200 meters, is less than 50% in all cases. Even skilled gunners will normally require more than one round to kill a tank.

CHAPTER 2

CONTROLS, SIGHTS, AND OPERATION OF THE LAUNCHER

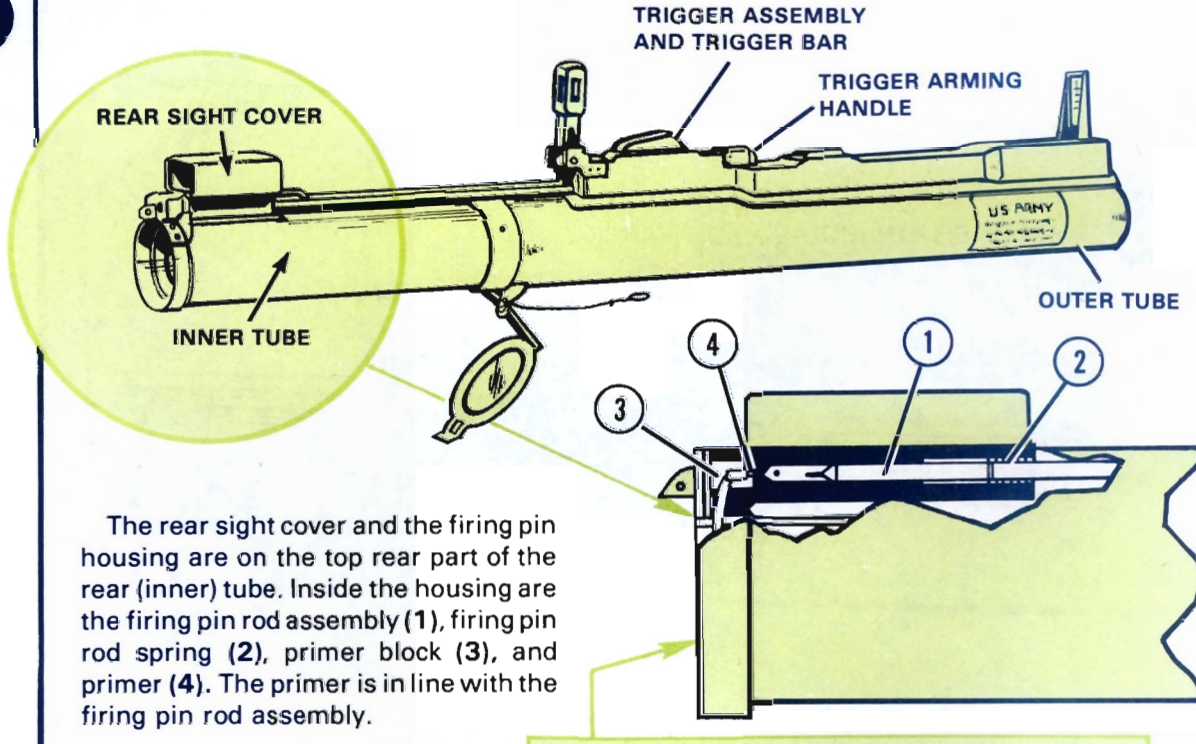
Section I. CONTROLS

GENERAL

The controls on the M72A1 and M72A2 LAW are the firing mechanism and the trigger arming handle.

FIRING MECHANISM

The trigger assembly is located on the top rear of the outer tube. The trigger is in the shape of a bar, and it must be pressed down to fire the launcher. When the trigger bar is depressed, it releases the tension on the firing pin rod assembly, which strikes the center of the primer.

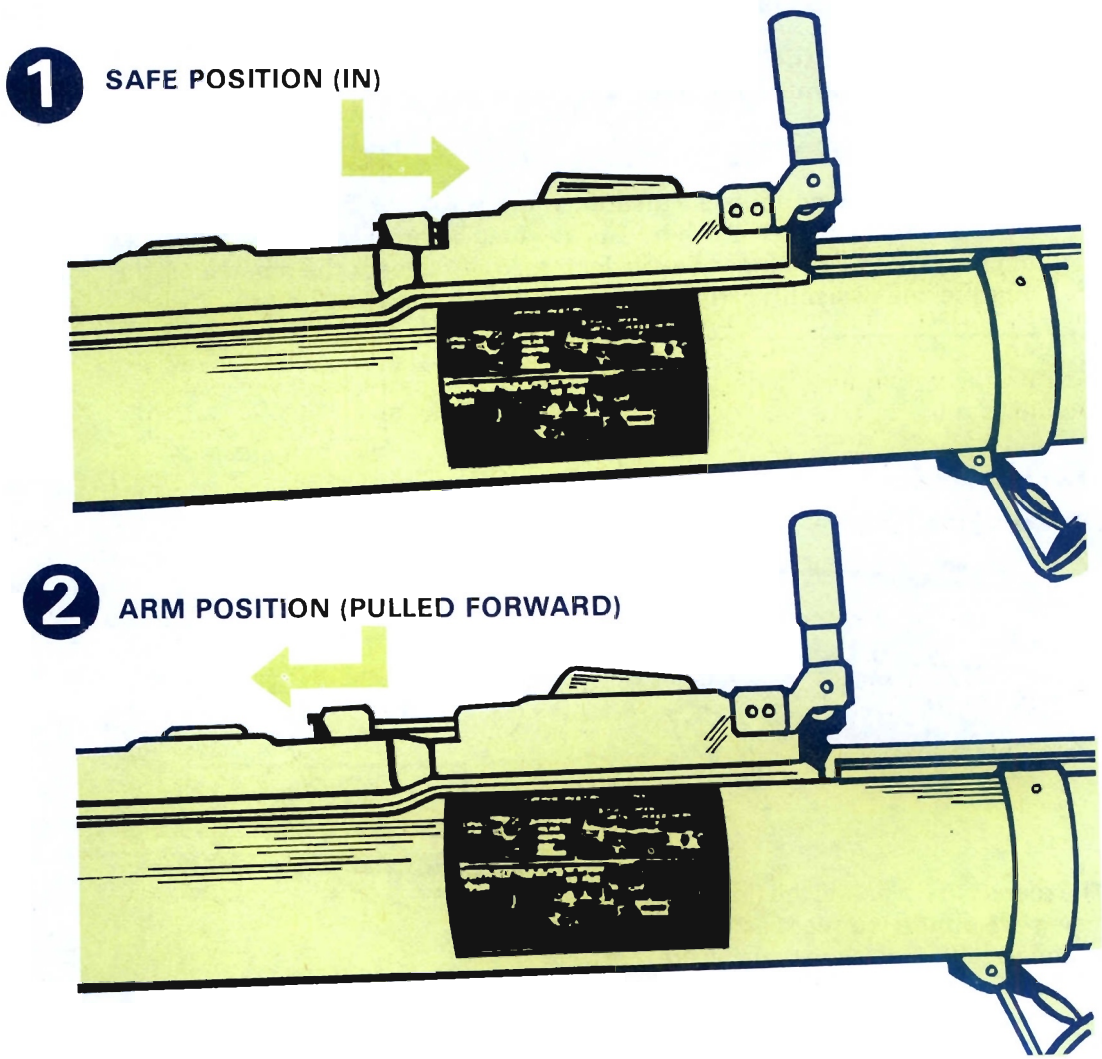


The rear sight cover and the firing pin housing are on the top rear part of the rear (inner) tube. Inside the housing are the firing pin rod assembly (**1**), firing pin rod spring (**2**), primer block (**3**), and primer (**4**). The primer is in line with the firing pin rod assembly.

CUTAWAY VIEW FIRING PIN HOUSING

TRIGGER ARMING HANDLE

The trigger arming handle has two positions, **Safe** and **Arm**. It must be pulled forward to the **Arm** position before the trigger can be depressed. It should not be placed in the **Arm** position until the launcher is in the correct firing position.



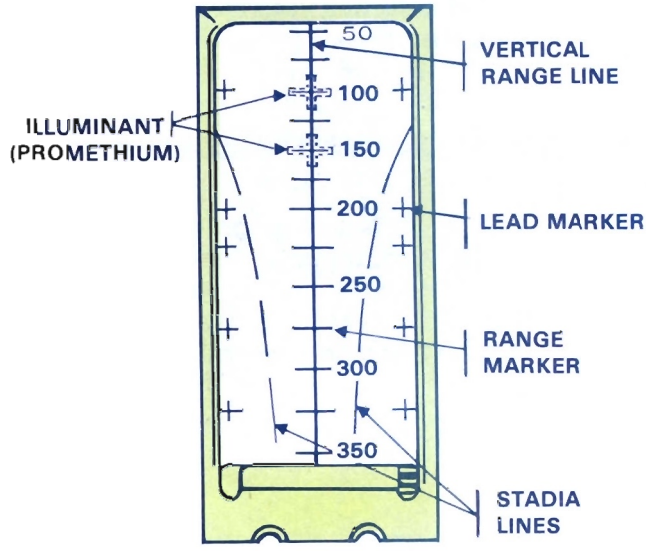
LAUNCHER LEFT SIDE VIEW

Section II.
SIGHTS

FRONT SIGHT

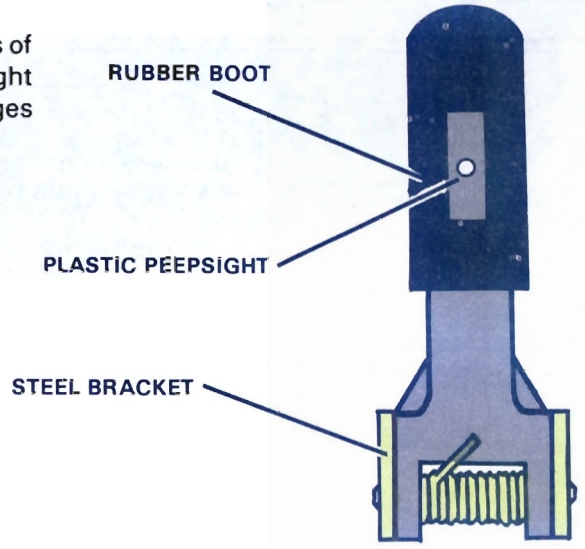
The front sight for the LAW has an embossed vertical range line showing ranges from 50 to 350 meters in 25-meter increments. The front sight on the M72A2 has a promethium range marker at the 100- and 150-meter points to aid the gunner in engaging targets under low light level conditions.

Two curved stadia lines are etched on the front sight, but these lines are no longer used for range estimation. On either side of the vertical line are lead marks which aid the gunner in engaging moving targets.



REAR SIGHT

The rear sight of the LAW consists of a steel bracket and plastic peepsight which automatically adjusts to changes in temperature.



Section III.

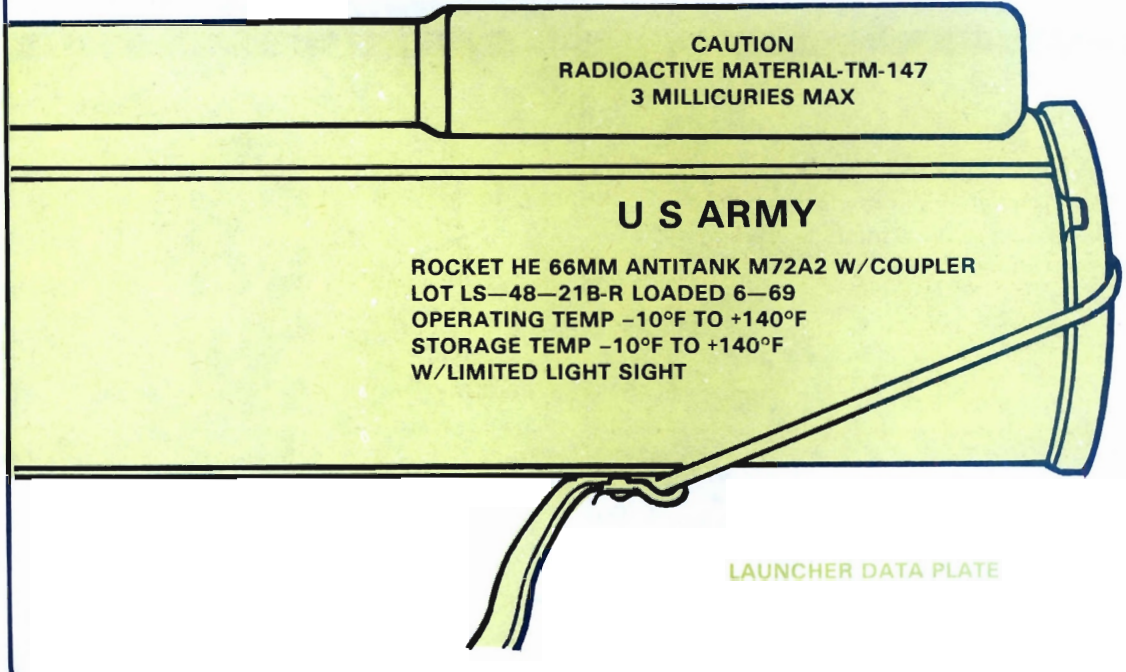
OPERATION OF THE LAUNCHER

GENERAL

This section describes the operating procedure for the M72A1 and M72A2 and the functioning of the launcher. It also explains the most common malfunctions and the method of applying immediate action.

OPERATION

Before preparing the launcher for use, inspect its overall condition. Check the body for **dents, cracks,** or **bulges.** Check the rubber boots covering the trigger bar and barrel detent for **tears** or **punctures.** To insure that the M72A2 has been modified for safety, check to see if the statement **"w/coupler"** is on the data plate. Also check to see if the arming handle is present and in the **Safe position** (page 2-2).

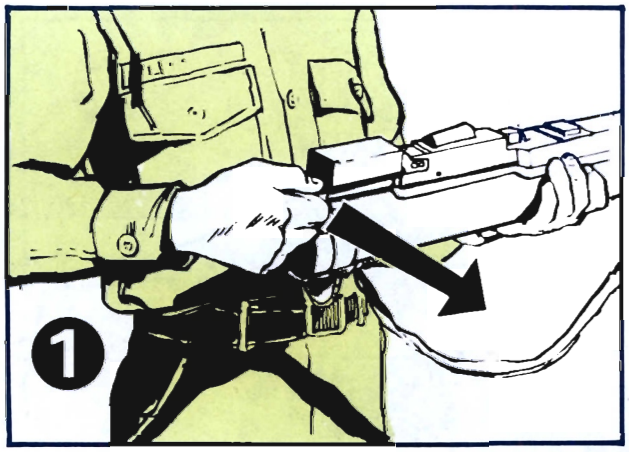


LAUNCHER DATA PLATE

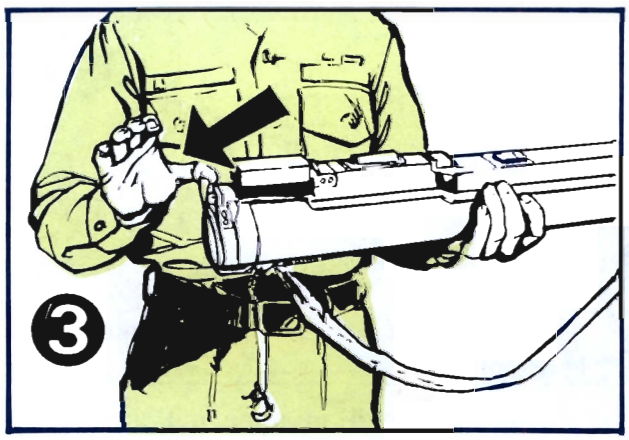
OPERATION

EXTENDING THE ROCKET LAUNCHER

To place the LAW into operation, remove the pull pin, (1) and (2).

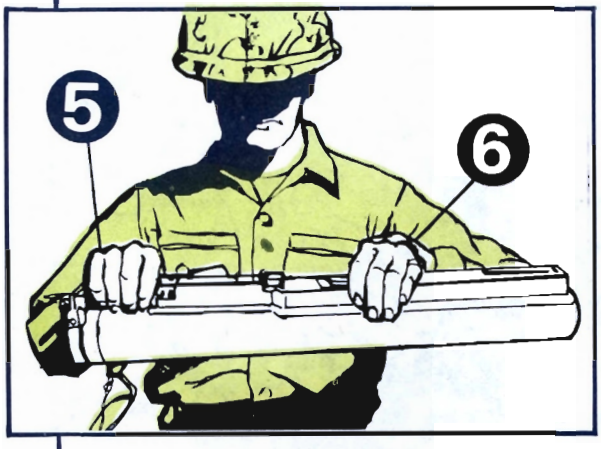


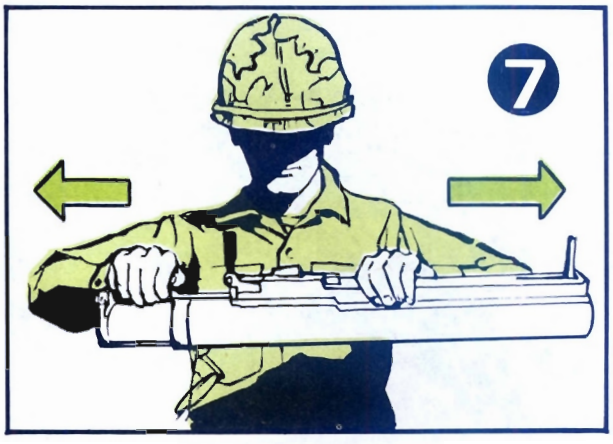
Rotate the rear cover downward (3), and the front cover and adjustable sling assembly should fall free (4).



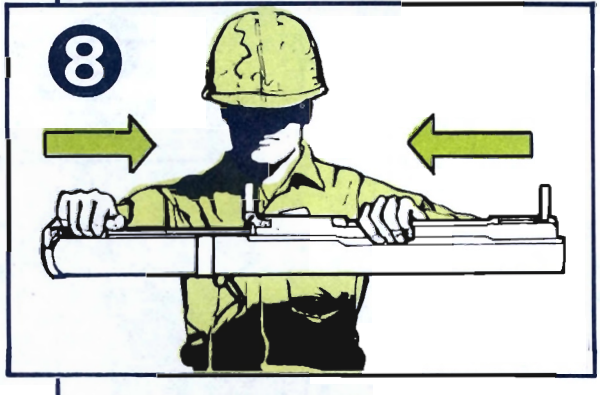
Do not discard the sling assembly until the rocket is fired.

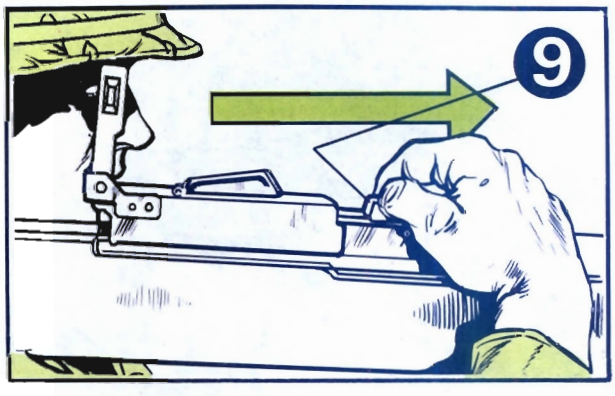
Extend the launcher by grasping the rear sight cover with the firing hand (5) and the launcher tube forward of the barrel detent with nonfiring hand (6).





Sharply pull the launcher to the extended position by moving the hands in the opposite directions (7). To insure that the launcher is fully extended and locked, reverse the motion of the hands and attempt to collapse the launcher (8).





Place the launcher on the shoulder, **check the backblast area,** pull the trigger arming handle to the **Arm position (9),** aim the launcher, and depress the trigger bar. **(If the trigger arming handle will not remain in the Arm position, the launcher is not fully extended.)**

CAUTION

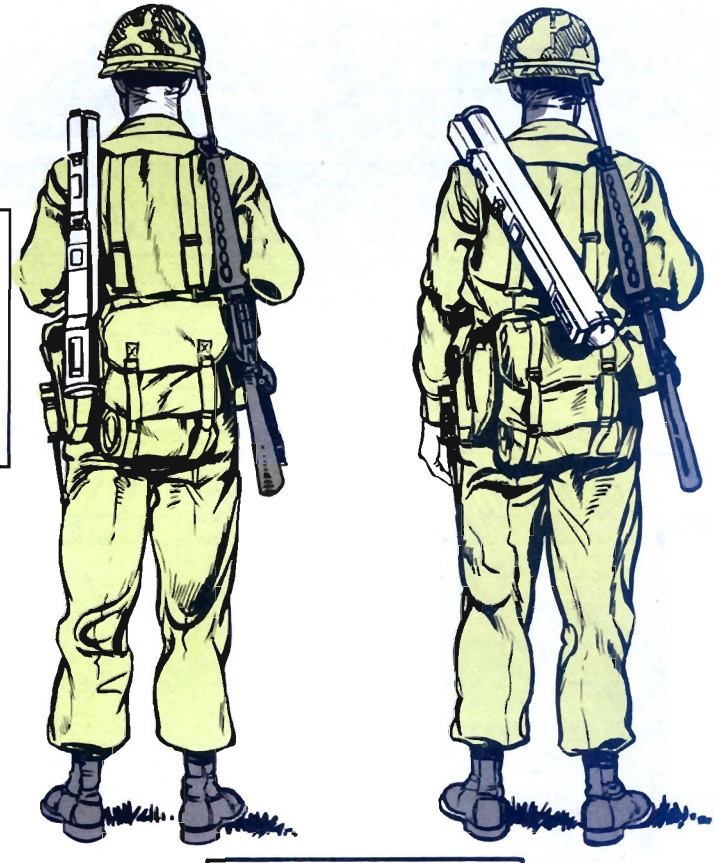
DURING THE OPERATION PROCEDURES LISTED ABOVE, YOU MUST KEEP THE WEAPON POINTED DOWN RANGE, AND INSURE THAT ALL PARTS OF THE BODY ARE CLEAR OF THE LAUNCHER MUZZLE AND REAR END. ALSO INSURE THAT THE BACKBLAST AREA IS CLEAR.

If the launcher is prepared for firing but not fired, return it to the carry position by reversing the preparation procedure: return the trigger arming handle to SAFE position, remove from shoulder, depress barrel detent, collapse launcher tube, guide front and rear sights into position, close rear cover and replace cover pull pin, and replace sling assembly. Once the launcher has been prepared for firing and returned to the carry position, it is no longer watertight. The rocket and rocket motor ignition system are waterproof, however, and are not affected by moisture.

For carrying, the launcher should be slung over either shoulder with the muzzle or forward end down.

CARRY POSITIONS

READY CARRY POSITION: LAUNCHER ON LEFT SHOULDER; STRAP UNDER LEFT ARM FOR QUICK REMOVAL.

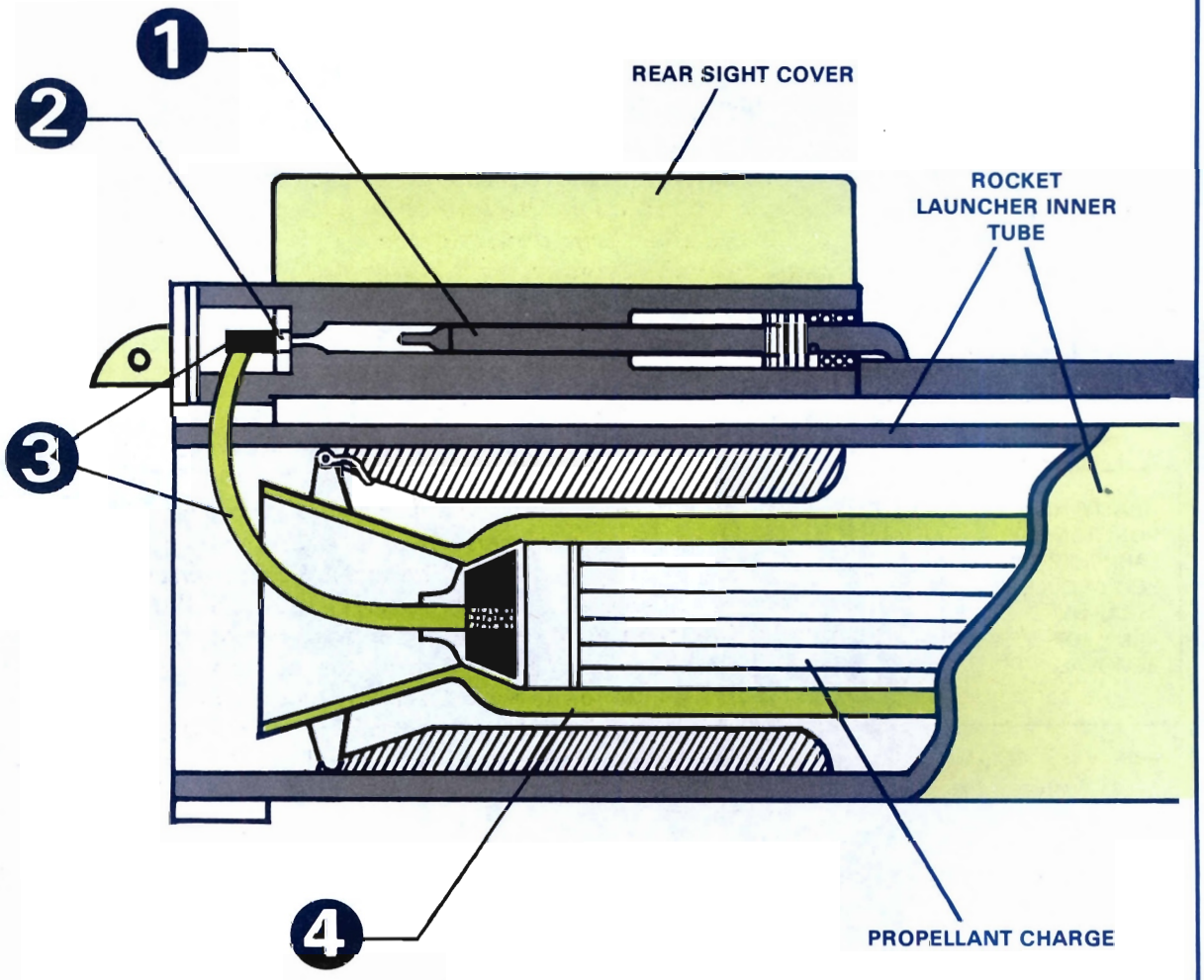


REGULAR CARRY POSITION: LAUNCHER ON LEFT SHOULDER; STRAP OVER FRONT, AROUND, AND UNDER RIGHT ARM.

(FOR RIGHT SHOULDER CARRY, REVERSE PROCEDURES.)

FUNCTIONING

Once the LAW has been prepared for firing, the trigger is depressed and the firing pin **(1)** strikes the primer **(2)**. The primer ignites black powder in the flash tube **(3)**, which in turn ignites the propellant in the rocket motor **(4)**.



CUTAWAY VIEW

MALFUNCTIONING AND IMMEDIATE ACTION

The most common malfunction is the misfire. A misfire is a complete failure to fire, which may be due to a faulty firing mechanism or a faulty element in the propelling charge explosive train. A misfire is not dangerous, but since it cannot be immediately distinguished from a delay in the functioning of the firing mechanism (a hangfire), it should be considered as a possible hangfire until such possibility has been eliminated.

Immediate Action in Combat. (1) After a failure to fire, immediately resqueeze the trigger. (2) If the launcher again does not fire, try to place the ***trigger arming handle*** on ***Safe,*** remove the launcher from the shoulder, and partially collapse it. (3) ***Recock the launcher*** by reextending it, place the launcher on the shoulder, ***Arm, aim,*** and ***fire.*** (4) If the launcher again fails to fire, ***resqueeze the trigger,*** try to ***return*** to ***Safe,*** collapse, and set aside. (5) If possible, destroy the launcher by one of the methods described in chapter 4.

Immediate Action in Training (M72A1, M72A2, M190 Subcaliber Device.) (1) After a failure to fire, ***immediately resqueeze the trigger.*** (2) If the launcher does not fire, ***announce Misfire*** and ***wait 10 seconds.*** (3) ***Keeping the launcher pointed*** at the ***target***, try to move the ***trigger arming handle*** to the ***Safe position*** and then remove the weapon from the shoulder. (4) ***Wait 1 minute, recock the launcher, recheck the backblast area,*** place the launcher on the shoulder, pull the ***arming handle to Arm position, aim,*** and ***squeeze the trigger bar.*** (5) If the launcher still does not fire, ***wait 10 seconds*** before attempting to return the ***trigger arming handle*** to the ***Safe position*** and remove the launcher from the shoulder. (6) ***Keep the launcher*** trained on the ***target area*** at least ***1 minute;*** but ***do not collapse*** the launcher. Move the launcher to a safe area and dispose of it in accordance with the unit SOP.

NOTE

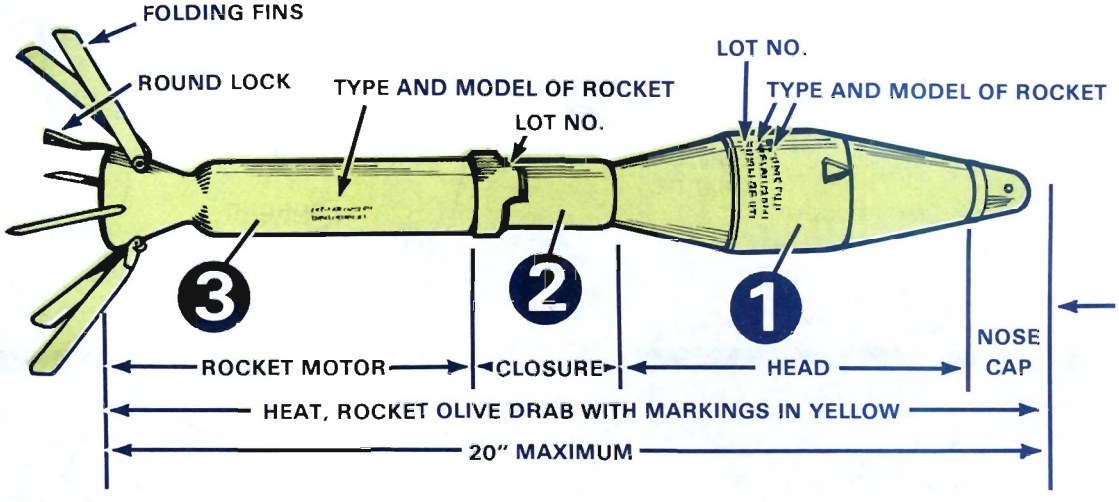
If the M190 subcaliber device malfunctions in training, an instructor or safety NCO should examine the primer housing lockpin to insure that the bent portion of the lockpin is pushing against the primer housing door. This is to be done after the first 1-minute wait. After the second failure to fire and 1-minute wait, remove the M73 rocket and examine the primer cap. If the primer cap is dented, a rocket malfunction has occurred. If the primer cap is not dented, the launcher has malfunctioned.

CHAPTER 3
ROCKET AMMUNITION

GENERAL

The LAW is issued as a round of ammunition. The propelling charge is not adjustable, and the rocket comes packed in the launcher as a unit. The rocket consists of a **head (1), a fuze (2),** and **a rocket motor** which contains the propellant and its igniter (3). The only designated ammunition for the rocket is high explosive antitank **(HEAT).** Although the LAW is used primarily as an antiarmor weapon, it can be used with good results against secondary targets such as gun emplacements and pillboxes. It can also be used against dismounted infantry.

HIGH EXPLOSIVE ANTITANK (HEAT) ROCKET



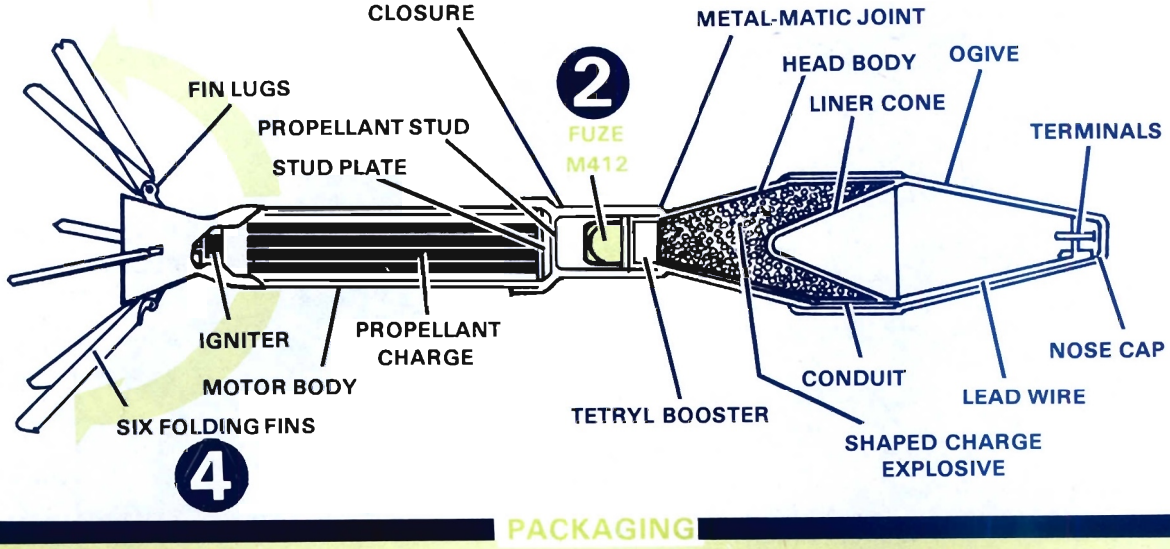
The 66-mm HEAT rocket warhead consists of a tapered, thin-gauge steel body **(1).** When it explodes, the force and heat of the explosive are focused into a small but powerful jet. The jet penetrates the target, and when it hits a vehicle, molten metal is sprayed inside the vehicle. If the jet hits an engine or ammunition, it may start a fire or cause an explosion.

TECHNICAL CHARACTERISTICS

- **FUZE.** The M412 fuze **(2)** is dropsafe and boresafe. The minimum arming distance is approximately 9 meters.

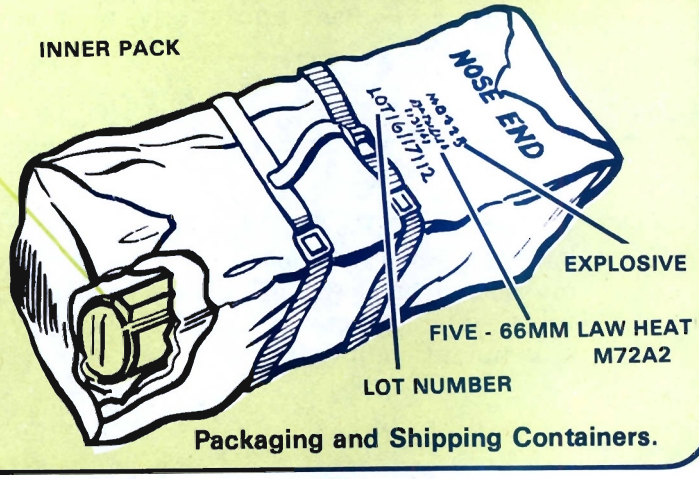
- **FIN ASSEMBLY.** Six fin attachment lugs are attached as a part of the motor **(4)**. These fins are opened by springs. As the rocket clears the launcher, the fins spring out and stabilize the rocket in flight.

- **IDENTIFICATION.** The HEAT rocket head is olive drab stenciled in yellow.

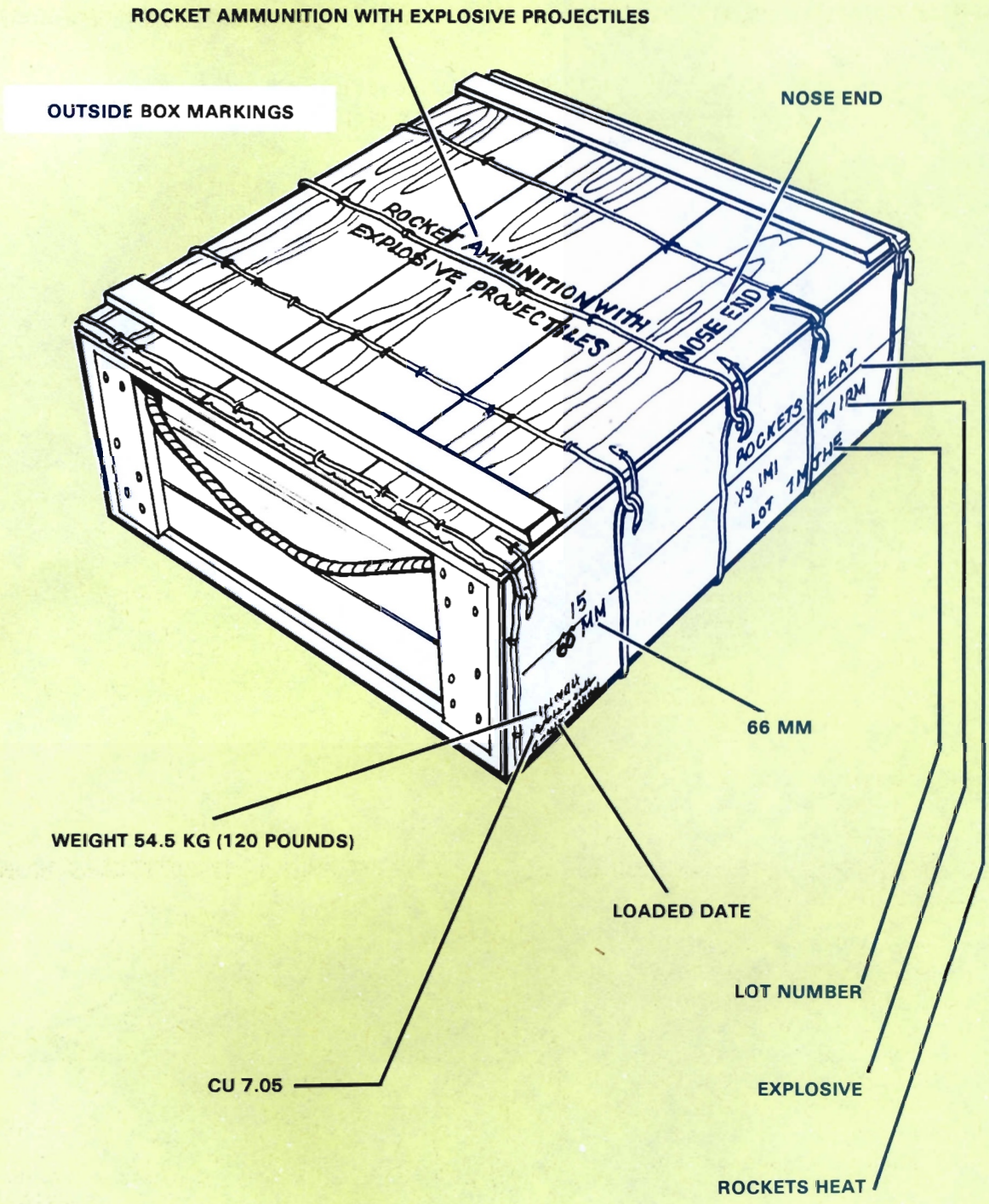


PACKAGING

Five complete LAWs are packaged in a fiberboard inner pack; three inner packs in a wirebound, wooden box. The inner pack of five LAWs weighs 12.5 kg (27½ pounds) and the gross weight of a box with 15 LAWs is 54.5 kg (120 pounds). The inner and outer boxes are marked as shown in the illustrations (page 3-2/3-3).



Packaging and Shipping Containers.


ROCKET AMMUNITION WITH EXPLOSIVE PROJECTILES
OUTSIDE BOX MARKINGS
NOSE END
ROCKET AMMUNITION WITH EXPLOSIVE PROJECTILES
NOSE END
ROCKETS HEAT
TNT/RM
XSINI
LOT TMOHE
15
60 MM
66 MM
WEIGHT 54.5 KG (120 POUNDS)
LOADED DATE
LOT NUMBER
CU 7.05
EXPLOSIVE
ROCKETS HEAT

CHAPTER 4

MAINTENANCE AND INSPECTIONS, DECONTAMINATION, AND DESTRUCTION

Section I.
MAINTENANCE AND INSPECTIONS

MAINTENANCE

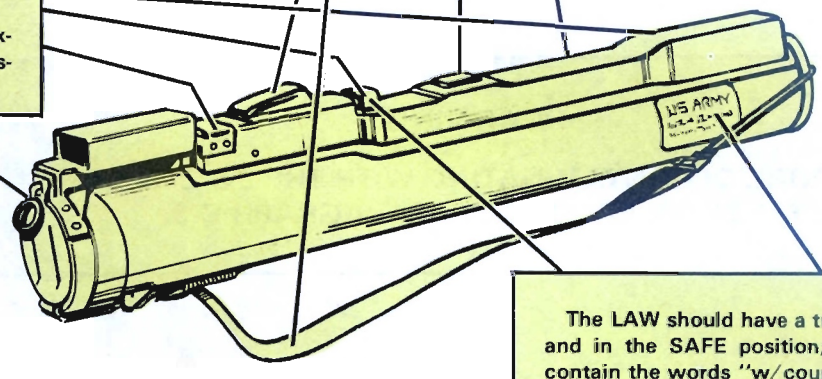
THE LAW REQUIRES NO OPERATOR OR ORGANIZATIONAL MAINTENANCE.

INSPECTIONS

Because the LAW is issued as an item of ammunition rather than as a weapon, inspections should be limited to visual examinations of the sealed unit.

The pull pin and the trigger arming handle should be in place. The exposed parts of both front and rear sights should also be examined for possible damage.

The rubber boots covering the trigger bar and the barrel detent should not be torn or punctured and the sling should be serviceable.



The LAW should be examined to insure that all of the seals are intact and that the tube has not been cracked, punctured, or crushed.

The LAW should have a trigger arming handle present and in the SAFE position; and the data plate should contain the words "w/coupler."

The launcher is waterproof when issued. To preserve the waterproofing, the launcher should not be extended until it is needed.

Section II.
DECONTAMINATION

PROCEDURES

The LAW should be decontaminated according to the procedures given in **FM 21-40.** Protective clothing and gloves should be worn while decontaminating.

TYPES OF CONTAMINATION

- If the contaminant is not a blister agent, **G-series,** or **V-agent,** decontamination can be accomplished by airing or washing the contaminated areas.

- If the contaminant is a **blister agent, G-series,** or **V-agent,** the affected areas should be cleaned of **all dirt, grease, or oil,** and **scrubbed** with **soap and water** or cleansed with **noncorrosive decontaminating agent DS-2.**

WARNING

BEFORE DECONTAMINATING WITH THE DS-2 AGENT, SEE FM 21-40, APPENDIX C, PARAGRAPH C-3.

Section III.
DESTRUCTION

GENERAL

In combat, the LAW will be destroyed by the user on order of the unit commander, to prevent capture or use by the enemy. When destroyed, the LAW must be so damaged that it cannot be readily restored to a usable condition by repair or cannibalization. Safety precautions must be exercised to prevent injury during destruction.

DESTRUCTION OR DISPOSAL

In combat, LAW may be destroyed or disposed of by any of the following methods.

METHOD NO. 1 BURNING

- **Place combustible material, such as wood, paper, rags, etc., about the LAW.**
- **Pour gasoline or oil on the LAW and combustible material.**

WARNING OBSERVE APPROPRIATE SAFETY PRECAUTIONS IN HANDLING GASOLINE. IT IS HIGHLY FLAMMABLE. CARELESSNESS MAY RESULT IN PAINFUL BURNS.

- **Ignite with an incendiary grenade, combustible train, or other safe means.**

WARNING TAKE COVER IMMEDIATELY. TIME REQUIRED FOR FIRE TO EXPLODE WARHEAD IS UNPREDICTABLE. IGNITED PROPELLANT IN ROCKET MOTOR MAY FIRE ROCKETS IN ANY DIRECTION.

DESTRUCTION OR DISPOSAL

METHOD NO. 2 DEMOLITION

- Prepare a ¼-pound demolition charge of TNT with the necessary detonating cord.
- Tape or tie the charge to the launcher near the trigger arming handle.
- Dual prime the charge to minimize the possibility of misfire.
- Take cover and detonate the charge.

NOTE. All personnel using demolitions must be thoroughly familiar with pertinent provisions of FM 5-25. Training and careful planning are essential to success in the use of demolitions.

METHOD NO. 3 DISPOSAL

- The LAW may be disposed of by burying or dumping into a stream; however, these methods do not render the LAW unserviceable.

METHOD NO. 4 — FIRING

- The easiest and quickest way to destroy a small quantity of LAWs is to fire them.

CHAPTER 5
TRAINING

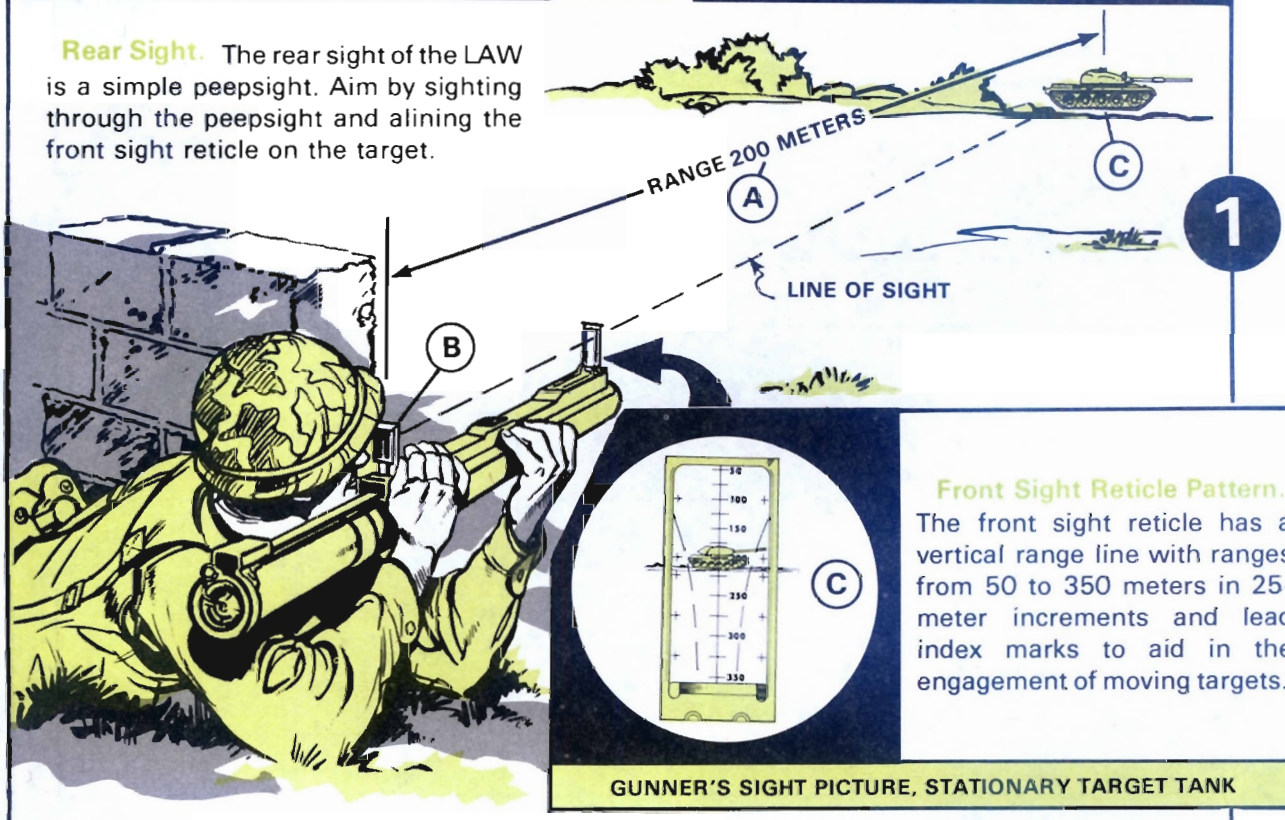
GENERAL

Marksmanship training must train each soldier in four essential skills:

1. aiming
2. positions
3. steady hold
4. trigger squeeze

AIMING

Rear Sight. The rear sight of the LAW is a simple peepsight. Aim by sighting through the peepsight and alining the front sight reticle on the target.



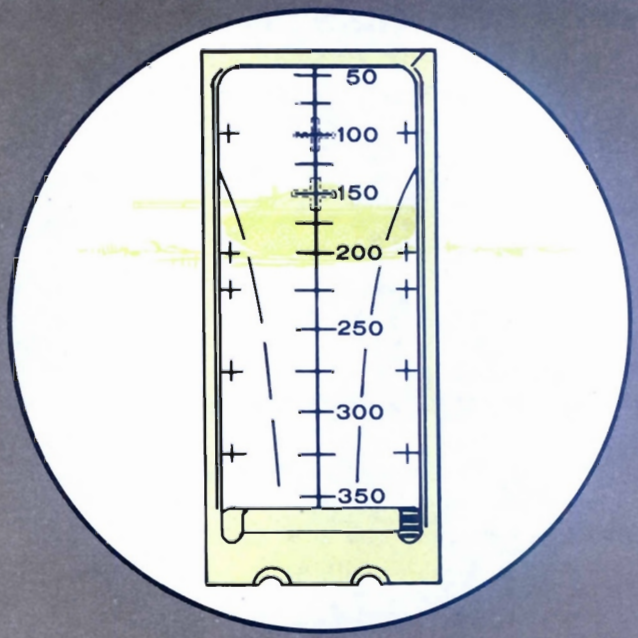
GUNNER'S SIGHT PICTURE, STATIONARY TARGET TANK

Front Sight Reticle Pattern. The front sight reticle has a vertical range line with ranges from 50 to 350 meters in 25-meter increments and lead index marks to aid in the engagement of moving targets.

Use of Sights. To sight the launcher, first determine the range to the target. This range determination may be done visually, by use of sector cards, or by use of a rangefinder. Once the range is determined (**A**), place the launcher in position on the shoulder so that the eye is close to, and in line with, the peephole in the rear sight (**B**). Look through the peephole at the sight reticle and place the range line, corresponding to the target range, on the target (**C**).

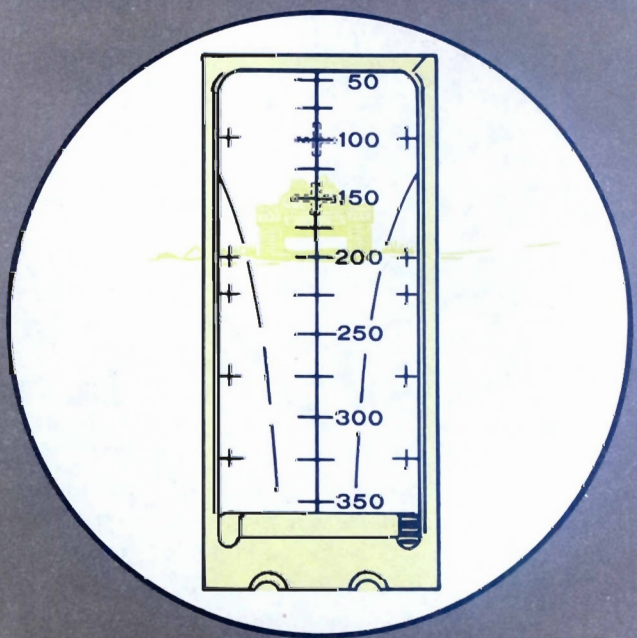
USE OF SIGHTS

Stationary target. To engage a stationary target, first determine the range to the target and locate this range on the vertical range line in the front sight. Then place this point on the target's center of mass and fire.



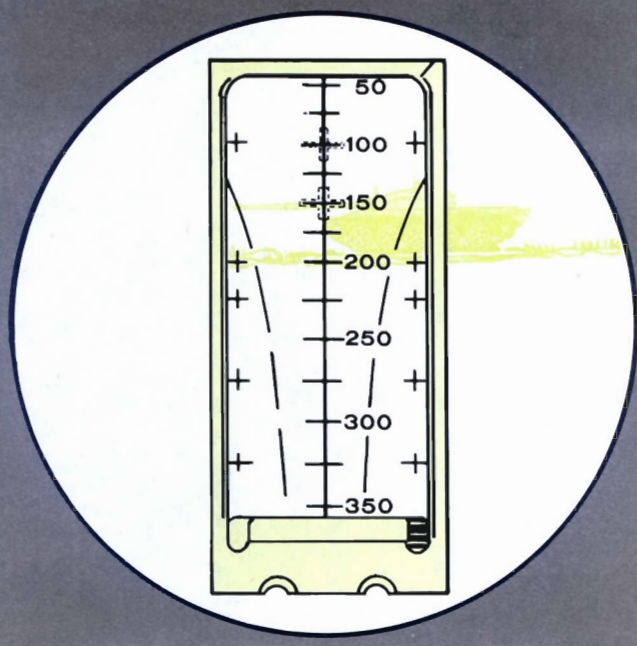
FRONT SIGHT PICTURE STATIONARY TARGET: SIDE VIEW AT 175 METERS

Targets moving directly toward or away from you. Engage in the same manner as stationary targets.



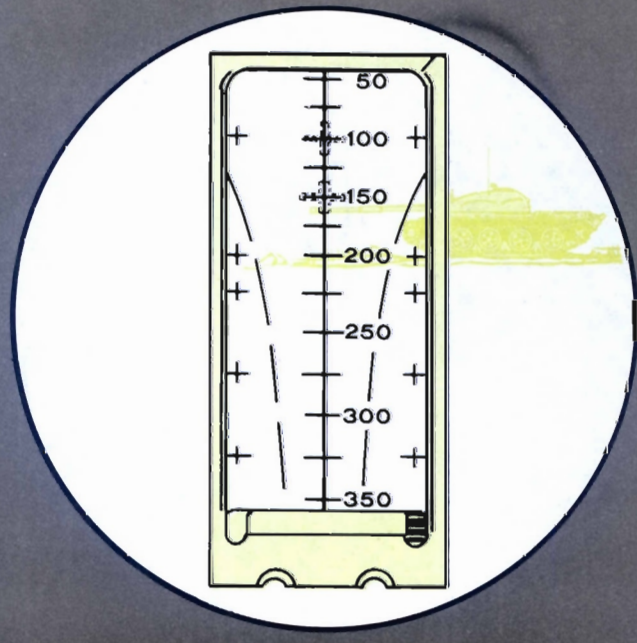
FRONT SIGHT PICTURE STATIONARY TARGET OR MOVING TARGET: HEAD-ON AT 175 METERS

Targets moving directly across the front. Estimate the target's speed as either slow **(8 kph or less)** or fast **(above 8 kph).** For slow-moving targets, locate the proper range mark on the vertical range line, locate the lead cross which is horizontal to the range mark, place the lead cross on center of mass of the target, and fire. For fast-moving targets, use the same procedure as for slow targets except that the lead cross is placed on the front leading edge of the target.



SLOW TARGET (8 KPH OR LESS)

FRONT SIGHT PICTURE: TARGET MOVING FROM RIGHT TO LEFT, SLOW, AT 175 METERS.



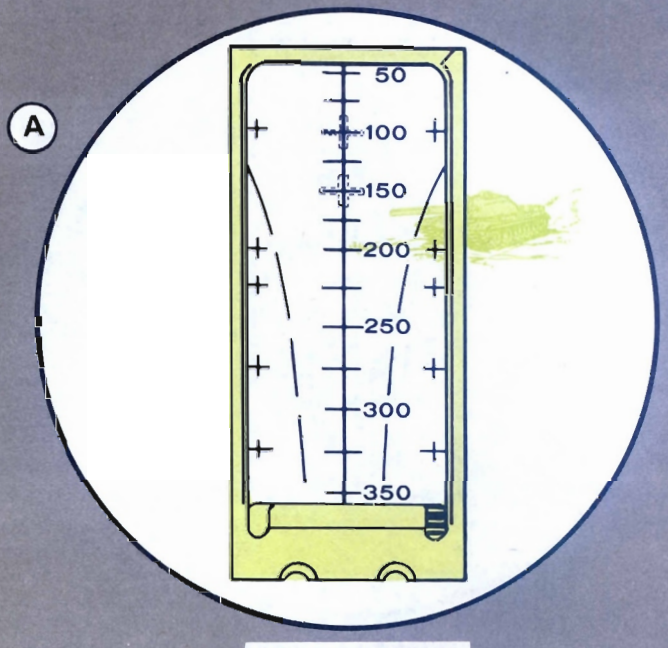
FRONT SIGHT PICTURE: TARGET MOVING FROM RIGHT TO LEFT, FAST, AT 175 METERS.

NOTE

Be sure to select the left or right lead cross which places the vertical center line in front of the target.

FAST TARGET (ABOVE 8 KPH)

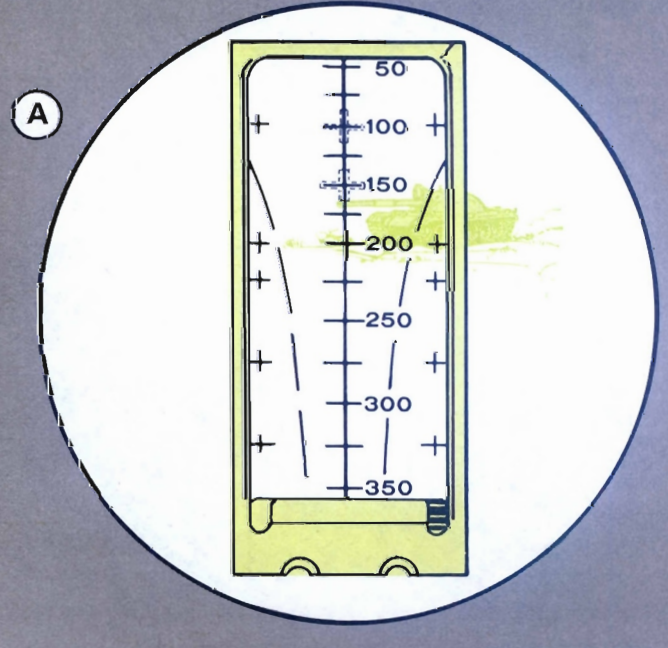
Targets moving at an angle. If more of the vehicle's side is visible than its front or rear **(A)**, engage the target as if it were moving directly across the front. The fast or slow speed determination will be based upon the target's speed across the line of fire. If more of the front or rear is visible **(B)**, engage the target as if it were a slow target moving directly across the front.

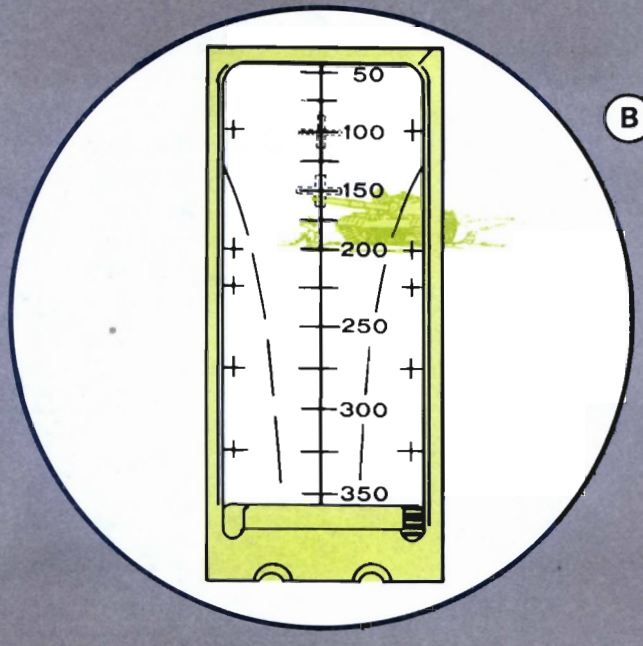


FRONT SIGHT PICTURE: TARGET MOVING TOWARD GUNNER, AT 175 METERS, FROM RIGHT TO LEFT, MORE OF SIDE VISIBLE THAN FRONT.

FAST TARGET

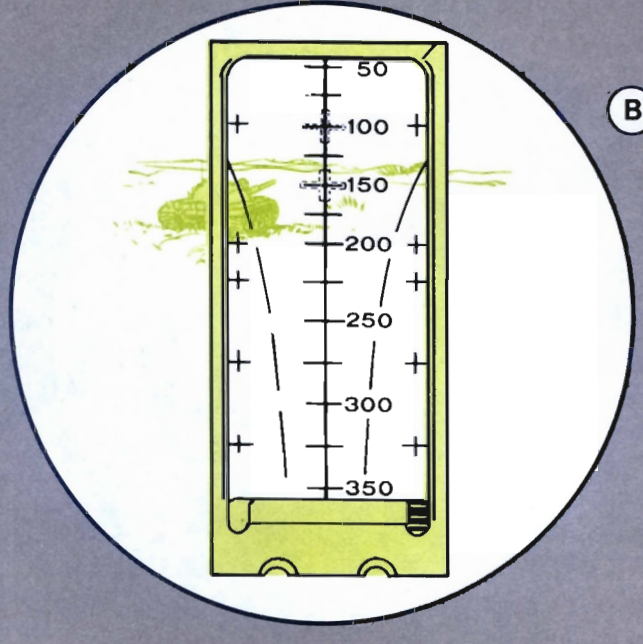
SLOW TARGET





FRONT SIGHT PICTURE: TARGET MOVING TOWARD GUNNER, AT 175 METERS, MOVING FROM RIGHT TO LEFT, MORE OF FRONT VISIBLE THAN SIDE.

ANY SPEED



FRONT SIGHT PICTURE: TARGET MOVING AWAY FROM GUNNER AT 175 METERS, MOVING FROM LEFT TO RIGHT.

2 POSITIONS

General. The LAW may be fired from the right or left shoulder in the standing, kneeling, or prone position. The exact position may vary slightly to allow for the shape of the firer's body. The position must be stable and comfortable and the most suitable one for engaging the target. When aiming and firing, use methods of steady hold. If the firer is left-handed, the procedures used for positions should be reversed. In general, the most suitable positions for engaging a moving target are standing and kneeling. All of these positions are suitable for stationary targets. **Situation, terrain, and individual preference should govern the selection of the best position.** Whenever possible, use these positions **with support.** A supported position is more stable and aids in aiming.

STANDING POSITION

The standing position is similar to the standing position for firing a rifle. Face the target, turn a half-right face, spread the feet a comfortable distance apart, and place the launcher on the shoulder. The body should be well-balanced with the hips level. The left hand should be directly under the forward portion of the launcher **(A).** The right elbow should be placed against the body for stability **(B).** To traverse in this position, move the body from the ankles up; do not move the feet. The standing position will expose the firer more than any other position; therefore, it is best used when firing from behind a protective barrier such as a wall, or from a foxhole. Since the standing position is the least stable position, support should be used whenever possible.

KNEELING POSITIONS

There are two satisfactory kneeling positions. The **modified kneeling position** is best for tracking moving targets. To get into the kneeling position for engaging moving targets, face the target, turn a half-right face, and kneel on the right knee, with the upper part of the right leg vertical. Point the left leg toward the target, keeping the left foot at a right angle to and opposite the right knee. The left leg forms a right angle to the ground. Hold the body erect with the left elbow under the launcher and the right elbow against the side.

The second kneeling position is similar to the kneeling position for firing the rifle. Kneel on the right knee with the right thigh at a 90-degree angle with the line of aim and sit back on the right heel, shifting the weight forward. As viewed from the front, the left leg should be vertical. It need not appear vertical, however, when viewed from the side. Rest the upper left arm forward of the left knee and the right arm against the body. Either position may be used when firing at stationary or moving targets; however, the modified kneeling position allows easier traverse. As with the standing position, maximum use of protective barriers and supported positions is essential with the kneeling positions in order to increase stability and reduce vulnerability.

PRONE POSITION

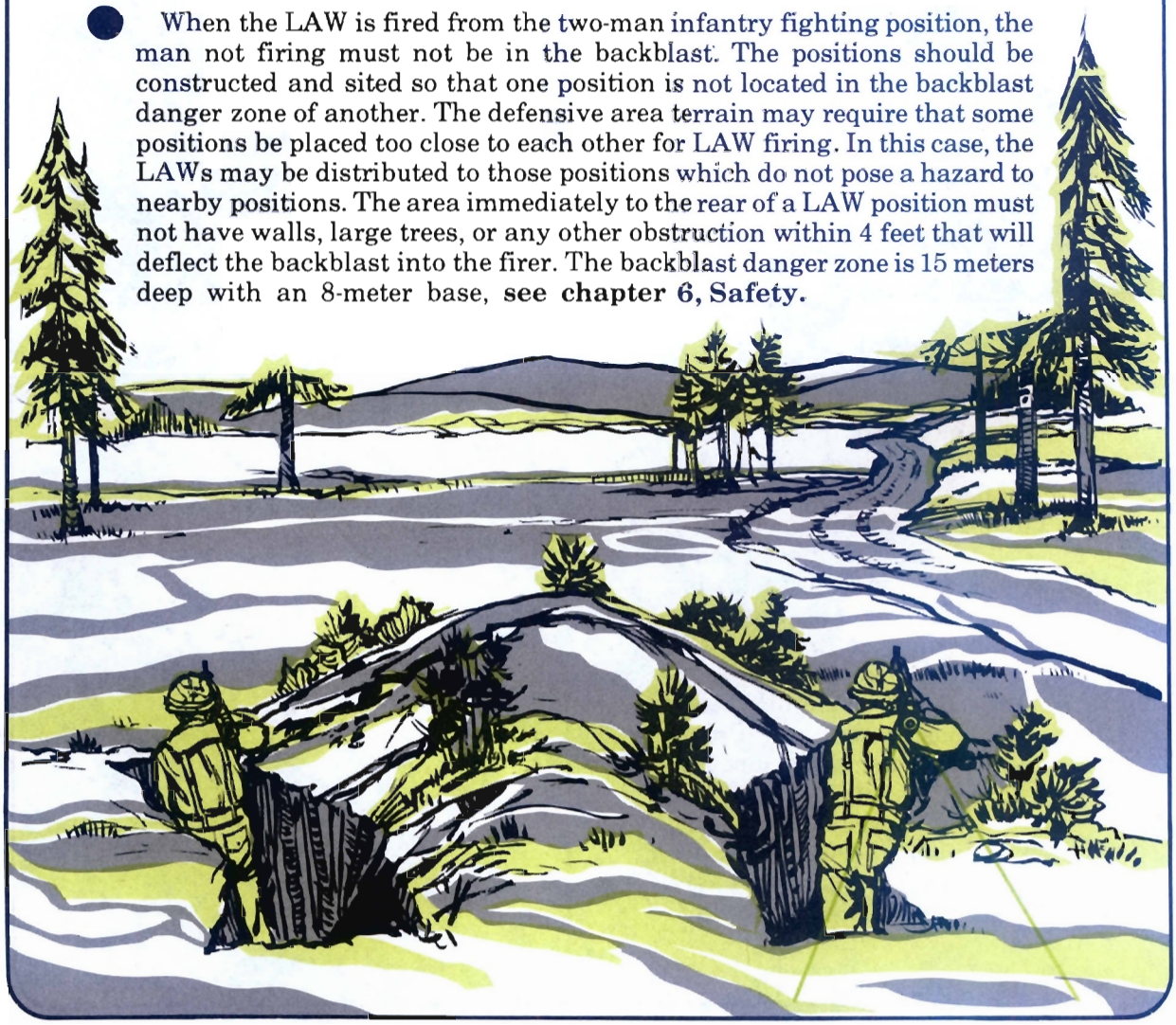
To get into the prone position, lie on the stomach at an angle of not less than 45 degrees to the line of fire **(A)** in order to keep clear of the backblast area. The body should be straight and the right leg directly on a line running through the right hip and right shoulder **(B).** Move the left leg as far as possible without being uncomfortable. Keep both heels on the ground. Hold both elbows well below the launcher. Hold the head as steady as possible, with the right eye lined up with the sights. When tracking a moving target, keep the body at a 45-degree angle to the line of fire so the backblast is not directed at the feet and legs. Although the prone position is the most stable position, the stability can be increased still more if support is used. Use of a prone position also gives a great deal of protection to the gunner. However, it is not recommended that moving targets be engaged from the prone supported position.

INFANTRY FIGHTING POSITION

The LAW can be fired from the standard infantry fighting position, but there are several things which must be taken into account to increase accuracy and to minimize the danger to friendly troops from the LAW backblast.

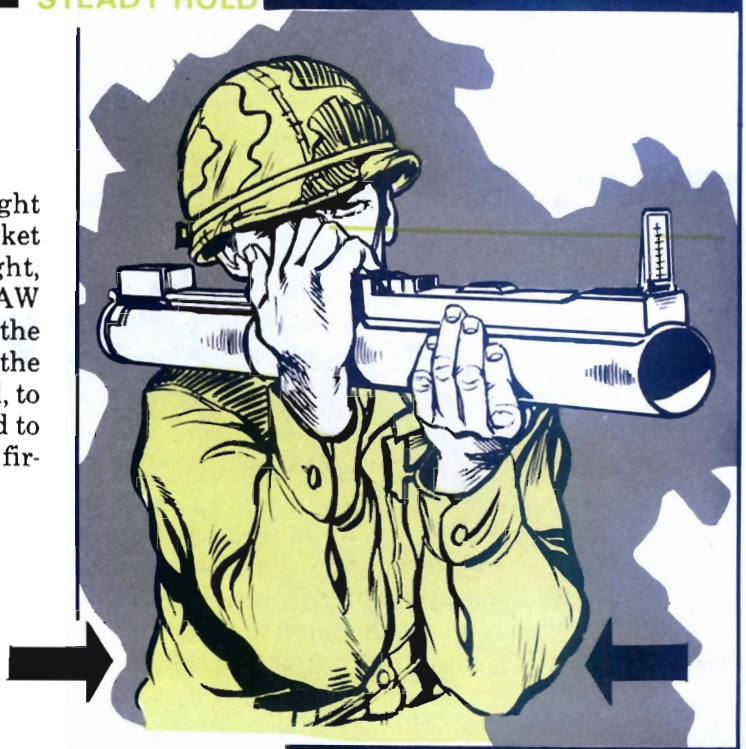
- The edges of the infantry fighting position are good elbow rests which may be used to increase the accuracy of fire. Stability is improved if the firer leans against the front or side wall of the fighting position.

- When the LAW is fired from the two-man infantry fighting position, the man not firing must not be in the backblast. The positions should be constructed and sited so that one position is not located in the backblast danger zone of another. The defensive area terrain may require that some positions be placed too close to each other for LAW firing. In this case, the LAWs may be distributed to those positions which do not pose a hazard to nearby positions. The area immediately to the rear of a LAW position must not have walls, large trees, or any other obstruction within 4 feet that will deflect the backblast into the firer. The backblast danger zone is 15 meters deep with an 8-meter base, **see chapter 6, Safety.**



3 STEADY HOLD

To insure that the proper sight picture is maintained until the rocket is fired, hold the launcher in a tight, comfortable position where the LAW becomes a natural extension of the body. Hold the elbows close to the body to aid in balance and control, to counter jerking and flinching, and to help synchronize breathing and firing.



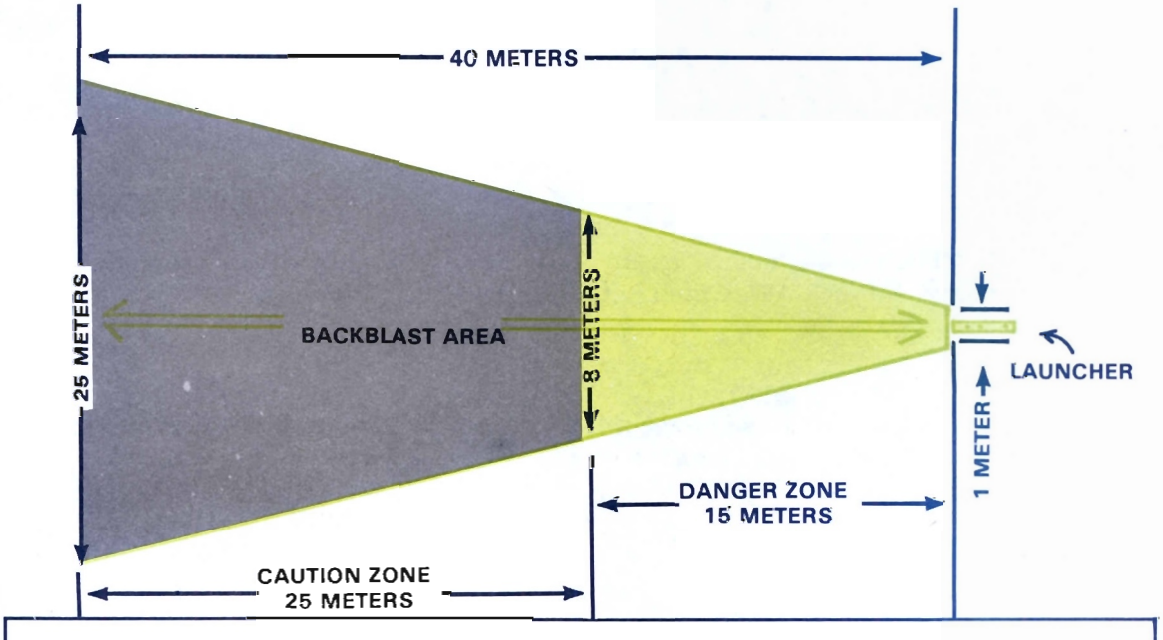
4 TRIGGER SQUEEZE

The trigger is a bar on top of the launcher. To fire, press straight down using the tips of the index, middle, and ring fingers. The thumb may be placed under the launcher or alongside the tube, depending upon which is more comfortable. Apply a steady, smooth squeeze downward with finger tips only. The use of the finger tips is important since, to fire the LAW, the trigger bar must be depressed until it is even with or slightly below the trigger housing assembly. Proper trigger squeeze can be developed by dry fire practice with an expended LAW launcher. Trigger squeeze should be practiced using several expended launchers to expose the firer to the difference in trigger pressure required to fire different LAWs.

CHAPTER 6
SAFETY

BACKBLAST AREA

The LAW has no recoil because it is an open-chamber weapon. Open-chamber means that the rear of the launcher is open, and the propellant gases escape to the rear of the launcher when it is fired. This backblast can cause severe injury to personnel and damage to equipment located too close. The total backblast area extends 40 meters to the rear of the launcher. The danger zone extends 15 meters to the rear and has a base of 8 meters. All personnel, equipment, and flammable material must be clear of this area. The caution zone extends an additional 25 meters beyond the danger zone and has a base of 25 meters. Personnel in this area could be injured from secondary missiles that are thrown to the rear by the backblast. In a training situation, the entire 40-meter area should be marked and kept clear of all personnel and equipment.



NOTE: All backblast area dimensions are doubled and firers should wear protective masks when the LAW is fired in temperatures below freezing.

RANGE FIRING PROCEDURES

The following safety precautions apply:

1. Before firing, the entire backblast area must be clear of all personnel, equipment, and flammable material.
2. No one goes into the area behind the firing line, or forward of the rear safety line, without permission of the officer in charge.
3. All LAWs are covered to protect them from the sun.
4. The LAW is not fired when temperatures exceed its operating limits (-40 degrees F to +140 degrees F).
5. All backblast area dimensions are doubled and firers should wear protective masks when the LAW is fired in temperatures below freezing.
6. HEAT rocket duds must be recorded. One soldier should be designated to count the rockets fired and the number of explosions. He will record the location of duds. Duds will be destroyed by EOD teams.

CHAPTER 7
TECHNIQUE OF FIRE

GENERAL

All LAW firers must be trained in technique of fire to help them place effective fire on targets. This training includes range determination, speed determination, method of engagement, and target vulnerability.

RANGE DETERMINATION

A soldier has a better chance of hitting any target with the LAW if he knows the range to the target. Methods of range determination must be learned and used by all who fire the LAW. There are many methods of determining ranges:

- **Using rangefinders.**
- **Measuring the distance on a map.**
- **Pacing.**
- **Firing the pair and sequence methods.**
- **Measuring with M203 grenade launcher quadrant sight.**
- **Using visual range estimation.**

Visual range estimation is the least desirable method of range determination due to its inaccuracy, but in the offense or in a hasty defense, it may be the only method available. Consequently, gunners must train to improve their ability to visually estimate ranges.

Ranges to expected armor engagement locations should be predetermined and recorded on a range card prepared for each infantry fighting position from which the LAW may be employed (see **chapter 8**). When employing an antiarmor ambush, the range to the kill zone must be predetermined.

SPEED DETERMINATION

The LAW with its 66-mm HEAT rocket is designed primarily for use against tanks and other armored vehicles. Normally, these targets are in motion, and accurate engagement depends upon the gunner's ability to determine speed as well as range.

The ability to determine speed is developed **by constant practice.** Gunners should first learn to determine the speed of a type vehicle at known ranges. As ability improves, the ranges and type of vehicle should be varied **(tanks should be used whenever possible).**

One method of determining target speed is to compare the speed of the target with the speed of a running man. If the target is traveling at the speed of a jogging man or slower **(8 kmph (5 mph) or less),** use the slow speed sight picture. If the target is traveling at the speed of a slow running man or faster **(more than 8 kmph (5 mph)),** use the fast speed sight picture.

METHODS OF ENGAGEMENT

There are four methods of engagement with the LAW:

1. Single,
2. Sequence,
3. Pair, and
4. Volley firing.

SINGLE FIRING

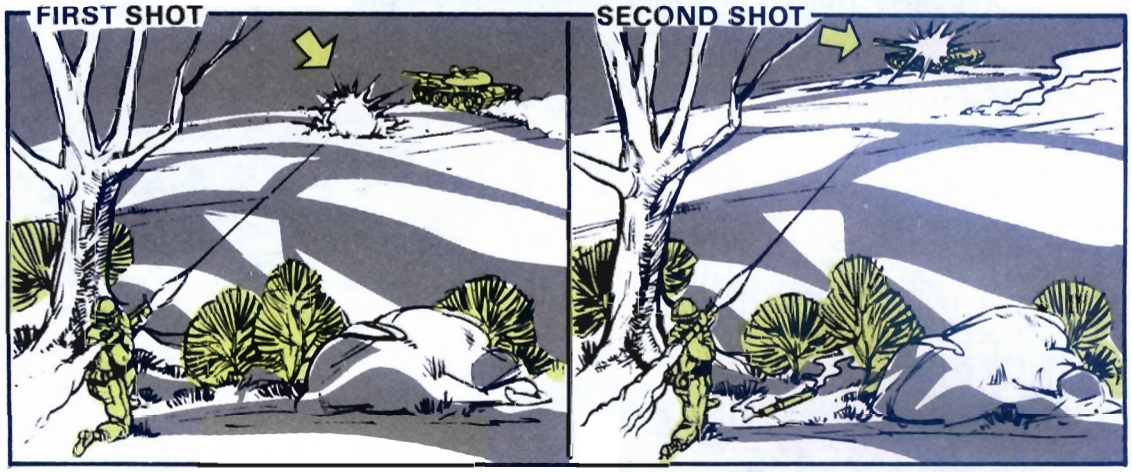
1

In single firing, a target is engaged by one man, firing one LAW, with no succeeding shots. This method should be used only at very short ranges (50 meters or less), when the range to target is unknown. The probability of a first round hit on targets at ranges greater than 50 meters using visual range estimation is relatively low. When the range to the target has been accurately predetermined, the single firing method of engagement may be used out to a range of 200 meters. This is a valid method of engagement as there may be situations when only one LAW is capable of engaging a target. However, the probability of killing the target with only one hit is low.

Range determination as well as the fundamentals of LAW marksmanship must be emphasized. Aiming, steady hold, positions, and placing the LAW into and out of operation can be practiced and tested using expended launchers.

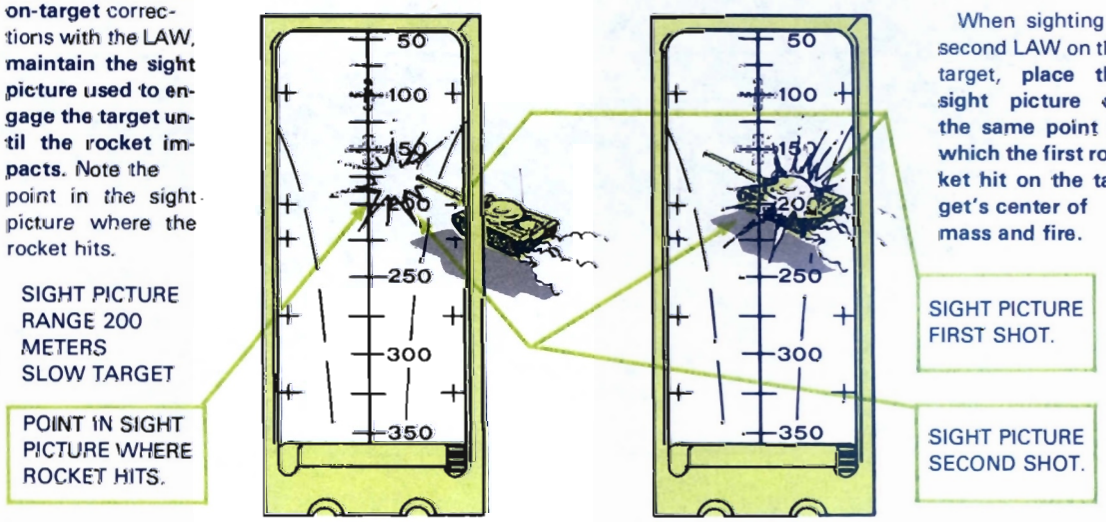
SEQUENCE FIRING

2 In sequence firing, the target is engaged by only one gunner who is equipped with two or more LAWs. Prior to firing, he inspects and prepares the LAWs. He observes the impact of the first round. If it is a hit, he continues to fire until the target is destroyed. If the target is missed, he applies **burst-on-target** corrections until the target is hit.



ONE GUNNER FIRES AND OBSERVES FIRST ROUND IMPACT, PICKS UP A SECOND LAW, CORRECTS HIS RANGE AND LEAD, AND REFIRES.

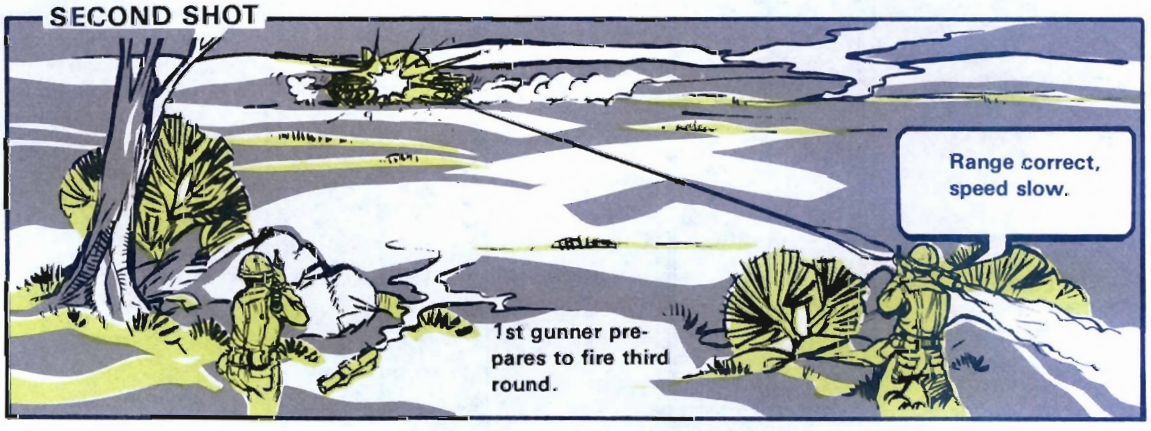
To apply **burst-on-target** corrections with the LAW, **maintain the sight picture used to engage the target until the rocket impacts.** Note the point in the sight picture where the rocket hits.



Training should emphasize the fundamentals of marksmanship as shown in METHODS OF ENGAGEMENT, paragraph 2, page 7-3. The gunner must learn to prepare two or more LAWs for sequence firing and be able to observe where the round(s) hit and make adjustments. The M190 subcaliber launcher with the M73 subcaliber rocket is ideal for sequence fire training.

PAIR FIRING

3 In pair firing, two or more gunners equipped with two or more LAWs engage a target. Each gunner inspects and prepares several LAWs. The gunners exchange information when engaging a target. The first gunner seeing the target identifies the target, announces the estimated range and lead he will use (Example: TANK, 150 METERS, FAST TARGET) and fires. The second gunner observes the firing and announces a revised estimate of range and lead (if appropriate) and fires. The gunners continue exchanging range and lead information until the target is hit.



Once the range and lead have been determined, all gunners, on command, will engage the target until it is destroyed. Two or more gunners who have prepared two or more LAWs and who exchange information will constitute pair firing, regardless of whether a target is hit with the first round. Under ideal conditions, pair firing is preferred over sequence firing. It permits the gunners to obtain target hits faster, i.e., gunners firing the succeeding shots can be ready to fire as soon as the previous round hits.

Training should emphasize the fundamentals of marksmanship. The gunners must be taught to prepare two or more LAWs and to exchange information through informal fire commands. The M190 subcaliber launcher with the M73 subcaliber rocket is an excellent training aid to measure the gunner's ability to pair fire. Mutual confidence can be achieved by realistic training at platoon, squad, and fire team level.

VOLLEY FIRING

4

In volley firing, a target is engaged by more than one gunner, each gunner firing one or more LAWs using the same sight data. To signal gunners, shots are fired, an oral command is given (Example: TANK, 150 METERS, FAST TARGET, VOLLEY FIRE, READY, AIM, FIRE), or an audible command (**such as a whistle**) or other prearranged signal is given. Another method is to have the gunners fire when the target reaches a target reference point. Volley firing should be used when the range to the target has been determined. It can be used after range is established by pair or sequence firing or after the range has been calculated by pacing, using rangefinders, maps, and/or target reference points. The volley method is desirable because more rounds are fired at a target at a given time. This method will increase the probability of hitting the target and obtaining a target kill. More than one volley may be necessary to kill the target.

Training should emphasize the fundamentals of marksmanship. The gunners must be taught to prepare two or more LAWs and to fire on command. The M190 subcaliber launcher with the M73 subcaliber rocket is an excellent training aid to measure the gunner's ability to volley fire. Mutual confidence can be achieved by realistic training at platoon, squad, and fire team level. In training for volley firing, the gunner must develop the ability to accurately pace, use rangefinders, use maps, and use target reference points.

SUMMARY

Volley firing is the preferred method of engagement if the range is known, and pair firing is preferred if the range is unknown. Pair firing has the advantage of having two or more gunners track the target. A miss by the first gunner will result in the second round being rapidly fired with the revised estimation of range and leads. A high volume of antitank fire can be achieved in the minimum amount of time by using volley firing. If the conditions prohibit pair and/or volley firing, the sequence firing method of engagement should be used. One gunner firing two or more LAWs can produce a volume of antitank fire on the target. Finally, there will be a few situations where only single firing can be used. The critical aspects of single firing are that the target should be at close range and the best marksman should be the gunner, thereby increasing the probability of a first-round hit. Remember that the probability of killing the vehicle with only one hit is low, so use of single firing will be rare.

Sequence and pair methods of engagement are both a means of determining range to a target and a method for target destruction. Volley fire should be used wherever practical, once the range has been determined, to insure target destruction.

In all methods of engagement, the LAW is more effective if armored vehicles are allowed to approach to close range, where there is a greater probability of first-round target hit and kill.

To insure that his available LAWs are used most efficiently, the unit leader must communicate with his soldiers. The men who have LAWs must know --

- Who will shoot.
- What target will be engaged.
- What method will be used to engage it.
- Range and lead to the target (if known).
- When to fire.
- When to cease fire (if necessary).

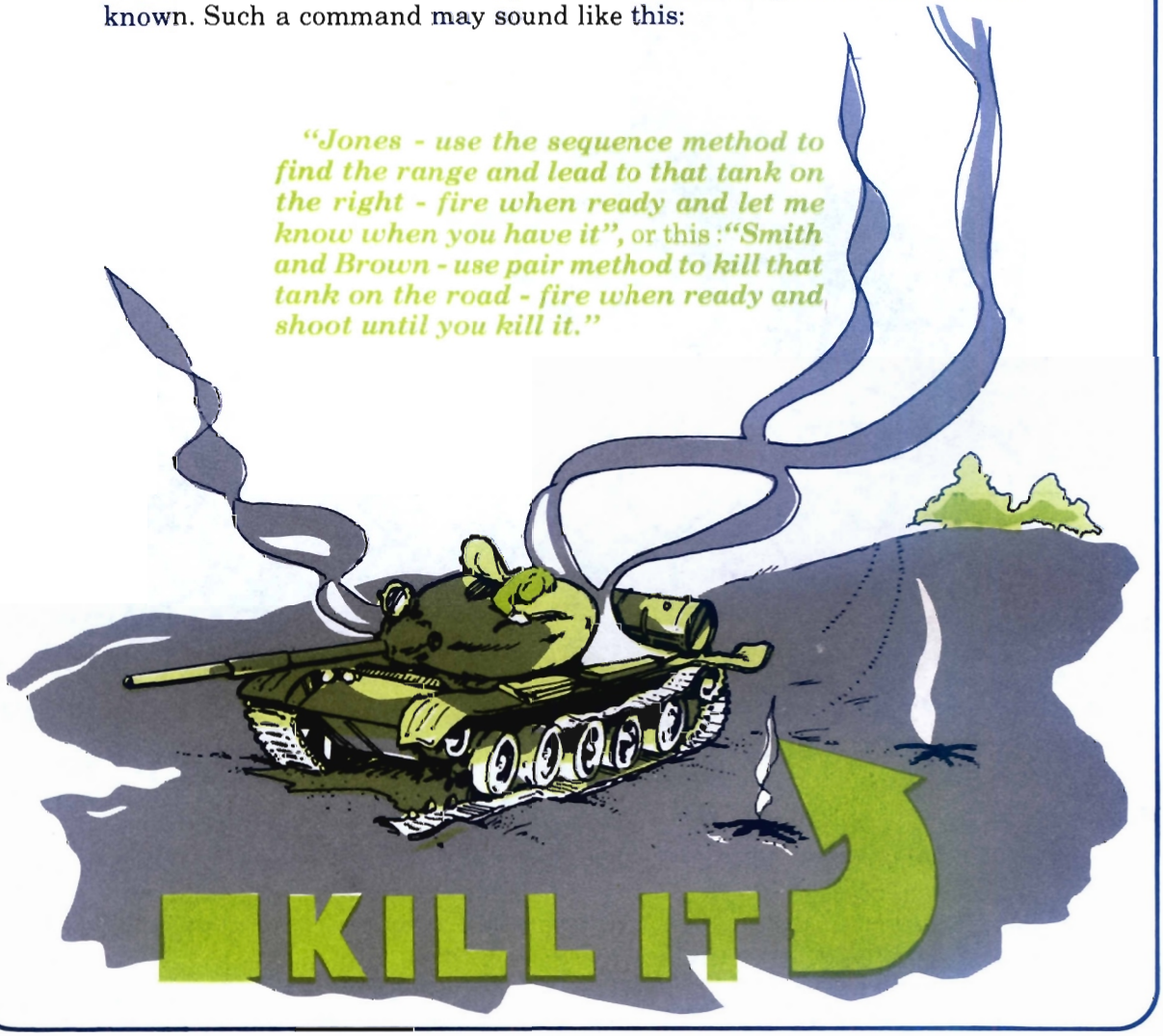
There is no prescribed way to give this information to gunners. Each leader will set his own SOP.

A command to use the volley method will give all of the elements listed on page 7-6 except when to cease fire. Each volley consists of only one round from each gunner; a new command must be given for a subsequent volley. Such a command may sound like this:

"Jones, Smith, and Kelley (or, 2d Squad; or, Alpha Team) - the tank by the bridge - volley - 125 meters, slow - ready, fire."

A command to use the pair or the sequence method will not normally give the range and lead because they are used when range and lead are not known. Such a command may sound like this:

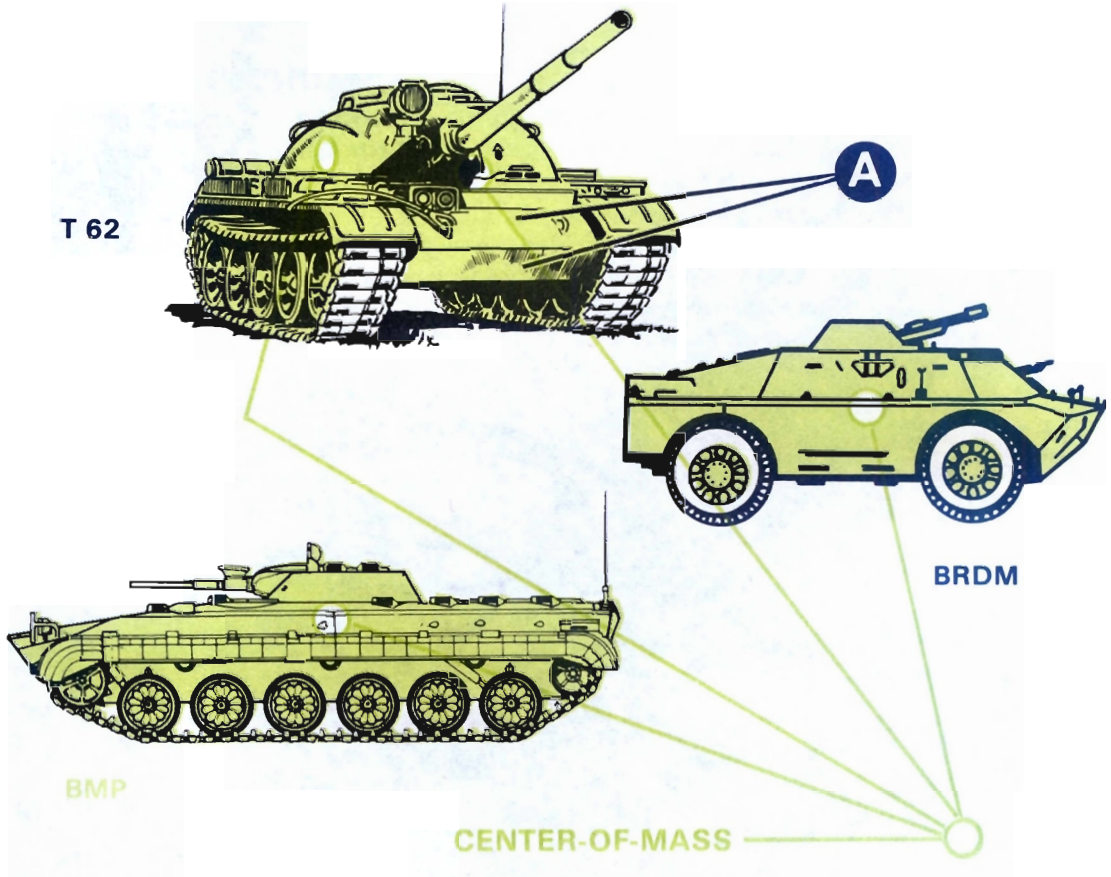
"Jones - use the sequence method to find the range and lead to that tank on the right - fire when ready and let me know when you have it", or this :*"Smith and Brown - use pair method to kill that tank on the road - fire when ready and shoot until you kill it."*



ARMOR WEAK POINTS

The tank usually has its heaviest armor on the **front slopes (A).** By comparison, the **top, rear, sides,** and **bottom** have much less armor protection. Gunners should try to engage a tank from the side or top whenever possible. The side offers the largest possible target area and less armor protection.

A tank, without the protection of dismounted infantry, is vulnerable to a close-in attack by well-armed infantry units. When the tank is buttoned up, the visibility of the crew is restricted, thus providing an opportunity for an armor-killer team to approach the tank without being detected.



Always try to get a **center-of-mass hit.** Hitting an armored target with one LAW rocket will probably not destroy it. Therefore, it is necessary to hit the target with several LAWs to make sure that it is destroyed.

CHAPTER 8
TACTICAL EMPLOYMENT

GENERAL

The LAW is issued as ammunition rather than as an individual weapon, and it is carried and employed by the soldier in addition to his basic weapon. Basic loads of LAW are assigned to units. Individuals assigned to units authorized a basic load of LAW should be trained in its use (app C). LAW supplements other organic antitank weapons, and it provides the primary means of antitank protection for the rifle squad and other units or installations not having organic antitank weapons. It may be employed in the offense by assault elements, or in the defense by any combat or other element of the Army.

OFFENSE

In the attack, LAWs should be readily available to influence the action where necessary. Due to its relatively short range, the LAW should be spread throughout the maneuver element. The LAW is employed primarily against armored vehicles; it may also be used against light vehicles, bunkers, pillboxes, or other crew-served weapon positions. The LAW's light weight and size make it the ideal weapon for armor-killer operations, ranger operations, and special forces missions. The night vision sight, AN/PVS-4 **(when available)**, can be attached to the LAW for operation during periods of reduced visibility or darkness.

DEFENSE

LAWs should be positioned laterally and in depth to cover the **most likely avenues of armored approach.** Lateral dispersion is necessary to increase the probability of obtaining **oblique fire** on enemy armor approaching the defensive position Due to its one-shot capability, more than one LAW should normally be assigned to troops designated to fire it. Since all riflemen may be given a LAW, **consideration must be given to the backblast when siting and constructing fighting positions.**

The LAW can be effectively employed at night using artificial illumination. The 40-mm illumination round is good for LAW engagements. Illumination should be placed above and slightly beyond the target. **Night firing is an essential part of LAW marksmanship training.**

ANTIARMOR RANGE CARD

Antiarmor range cards should always be prepared, when time permits, for positions employing the LAW. An **antiarmor range card** is an oriented sketch prepared by a gunner, showing his **sectors of fire and responsibility.** The card serves as a **ready reference** and as an **aid** to the **gunner in determining the range to targets within his sector.** Determining the ranges to likely target areas within the gunner's sector, prior to the enemy's attack, is **important** since **effectiveness of LAW fire** is **greatly increased** when the **range** to the **target is accurately known.** Ranges are determined by the many methods previously discussed. To be effective, **antiarmor range cards** should be prepared for **primary, alternate,** and **supplementary** positions. **Antiarmor range cards** show the **position** of the LAW, **ranges** and **directions** to **prominent terrain features,** and anticipated **target engagement areas.**

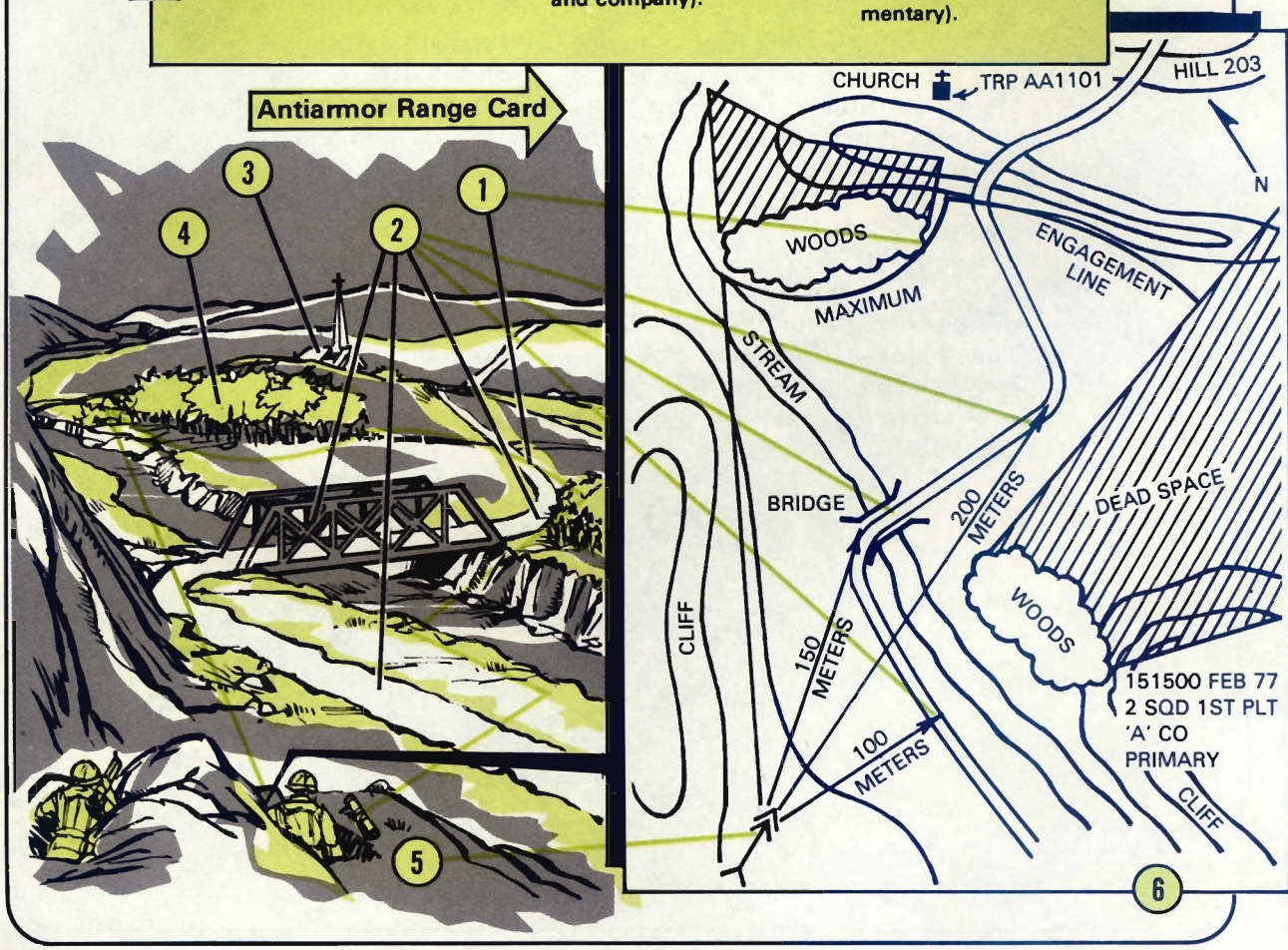
Essential items of an antiarmor range card in their order of priority are–

1. **Boundaries of the sector of fire, to include the maximum engagement line.**
2. **Location and distance to anticipated target engagement locations.**
3. **Location of target reference points in or near the sector of fire.**
4. **Deadspace.**
5. **The LAW symbol.**
6. **Marginal data, to include --**

   A. Date and time of preparation.

   B. Unit designation (squad, platoon, and company).

   C. Position description (primary, alternate, or supplementary).



The LAW's destructive power combined with its light weight makes it an excellent weapon for **combat patrols, ambush parties,** and **armor-killer teams.** It can be **effectively employed by raiding parties** against such targets as **command posts, communication installations,** and **supply dumps.**

The **armor-killer team** can use LAW in both **offensive** and **defensive** actions. Generally, **armor-killer teams** should be employed during periods of limited visibility and in areas where **cover, concealment,** and **withdrawal routes** are readily available. As a minimum, the team should have a leader, a security element, and an antitank element. A four-man team provides the minimum number of personnel to accomplish this type of mission. Some areas which are suited for **armor-killer operations** include **dense forest** with only a **few roads,** and **built-up areas.** The **armor-killer team** should be **skilled** in the **use** of the **LAW** and employ the **volley fire method** of engagement to gain **surprise** and a **high probability of hit** and **target destruction.**

APPENDIX A
TEXT REFERENCES AND TRAINING AIDS

TEXT REFERENCES

ARMY REGULATIONS (AR)

385-63	REGULATIONS FOR FIRING AMMUNITION FOR TRAINING, TARGET PRACTICE, AND COMBAT.

FIELD MANUALS (FM)

5-25	EXPLOSIVES AND DEMOLITIONS
21-6	HOW TO PREPARE AND CONDUCT MILITARY TRAINING
21-30	MILITARY SYMBOLS
21-40	NBC DEFENSE
23-9	M16A1 RIFLE AND RIFLE MARKSMANSHIP

TECHNICAL MANUALS (TM)

9-2340-203-20	ORGANIZATIONAL MAINTENANCE MANUAL: ROCKET LAUNCHER M190 WITH SUBCALIBER 35—MM PRACTICE ROCKET M73
9-1340-214-12	OPERATOR AND ORGANIZATIONAL MAINTENANCE MANUAL FOR 66-MM LIGHT ANTITANK WEAPON SYSTEM M72 SERIES

TRAINING CIRCULARS (TC)

7-50	FIGHTING POSITIONS FOR INFANTRY SOLDIERS
21-5-7	TRAINING MANAGEMENT IN BATTALIONS

TRAINING AIDS

TRAINING EXTENSION COURSE (TEC) PROGRAMS

948-071-0006-F	OPERATING THE M72A2 LAW
948-071-0005-F	LAW (ENGAGING THE TARGET)
948-071-0007-F	CONTROLLING EMPLOYMENT OF THE LAW

APPENDIX B
TRAINING TIPS

PURPOSE

This appendix is designed to provide trainers with information that will aid in the conduct of LAW training. It includes a description of devices available, guidance on their uses, and advice on conducting LAW training.

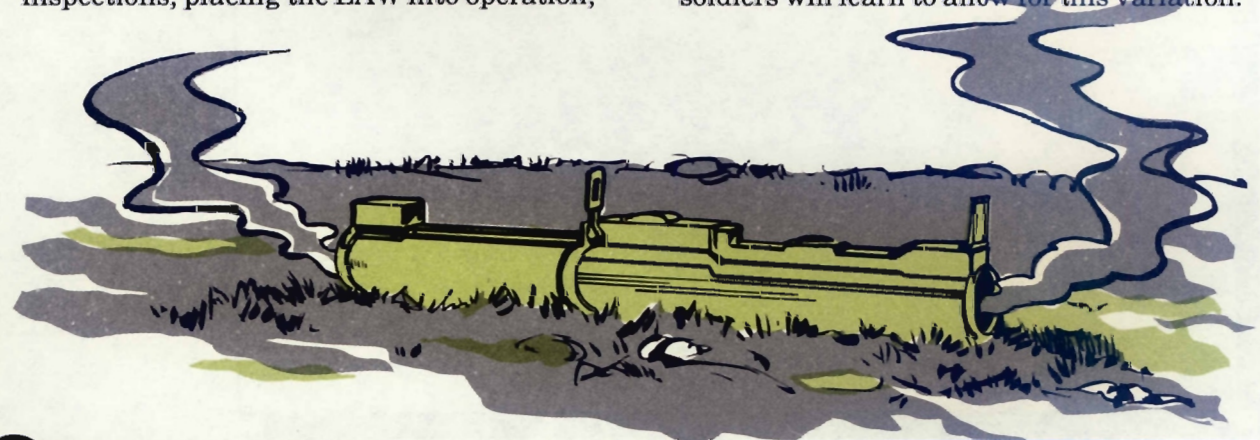
TRAINING DEVICE

M190 SUBCALIBER DEVICE

This is the most useful training device for the LAW since it allows you to perform all of the tasks involved in firing the LAW HEAT rocket, to include actually firing a projectile at a target. The M190 also saves money because it can be reloaded with the low cost 35-mm M73 rocket which it fires. This savings allows you to fire many more rockets than would be practical if the HEAT rocket were used. The M190 may be fired at stationary or moving targets. Manned tanks may be used for M190 firing but they **must be specially modified** to shield certain parts which can be damaged by the subcaliber rocket. Your local **Training and Audiovisual Support Center (TASC)** can provide plans and specifications for modifying a tank for use as a target.

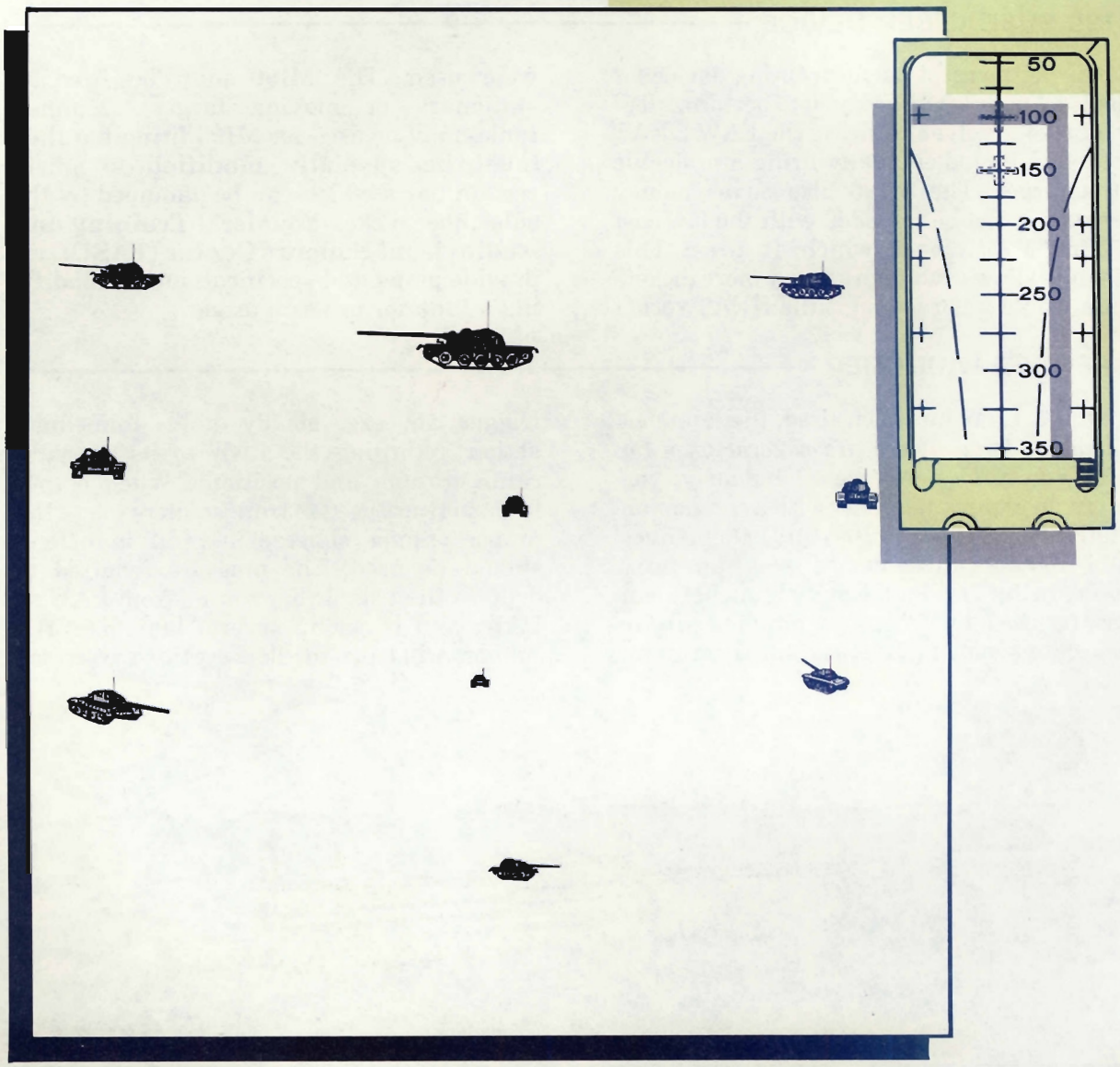
EXPENDED LAUNCHER

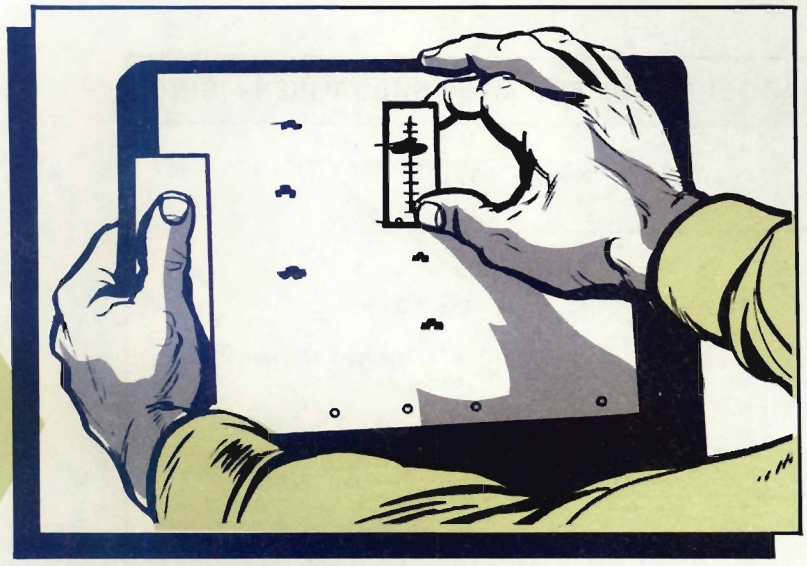
After a LAW has been fired, the launcher should be kept. There are several uses for these empty launch tubes. Obviously, you can fit any empty launcher with a conversion kit **(NSN 1340-00-420-7999)** to produce the M190 subcaliber device **(see appendix D, Training Device).** Empty launchers can also be used by troops to practice prefire inspections, placing the LAW into operation, trigger squeeze, steady hold, immediate action, returning the LAW to its carrying configuration, and positions. When empty launchers are used to train soldiers to use the proper trigger squeeze, several launchers should be used. The pressure required to depress the trigger bar varies from LAW to LAW, and by using several launchers the soldiers will learn to allow for this variation.



FRONT SIGHT AND SILHOUETTE SHEET

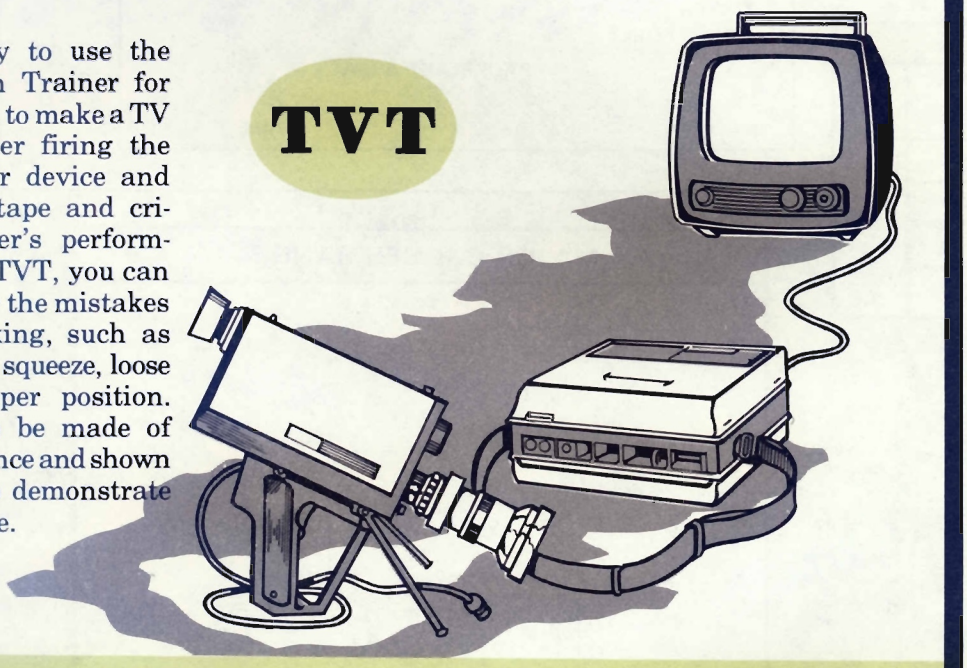
The front sight of an empty launcher may be removed and used along with silhouette sheets for training troops in the techniques of sighting. Provide each soldier with a front sight, a copy of a silhouette sheet, and range and speed information for each silhouette. Each soldier can then position the sight over the silhouette to show the proper sight picture for the target aspect and data. Check each soldier's solution and help those who are having difficulty.





TELEVISION TRAINER

The best way to use the Sony Television Trainer for LAW training is to make a TV tape of a soldier firing the M190 subcaliber device and then play the tape and critique the soldier's performance. By using TVT, you can show the soldier the mistakes that he is making, such as improper trigger squeeze, loose hold, or improper position. Tapes can also be made of correct performance and shown to the troops to demonstrate proper technique.



SUGGESTED COURSE OF TRAINING - See appendix C.

SUGGESTED RANGE LAYOUT

SUBCALIBER FIRING M190 STATIONARY TARGET

RANGE	NUMBER ROUNDS	TARGET	POSITION
100M	1	TANK STATIONARY	SITTING
200M	1	TANK STATIONARY	PRONE

NOTE: FIRING SHOULD BE SEQUENCED IN ORDER TO ALLOW EVALUATION OF INDIVIDUAL GUNNER PERFORMANCE.

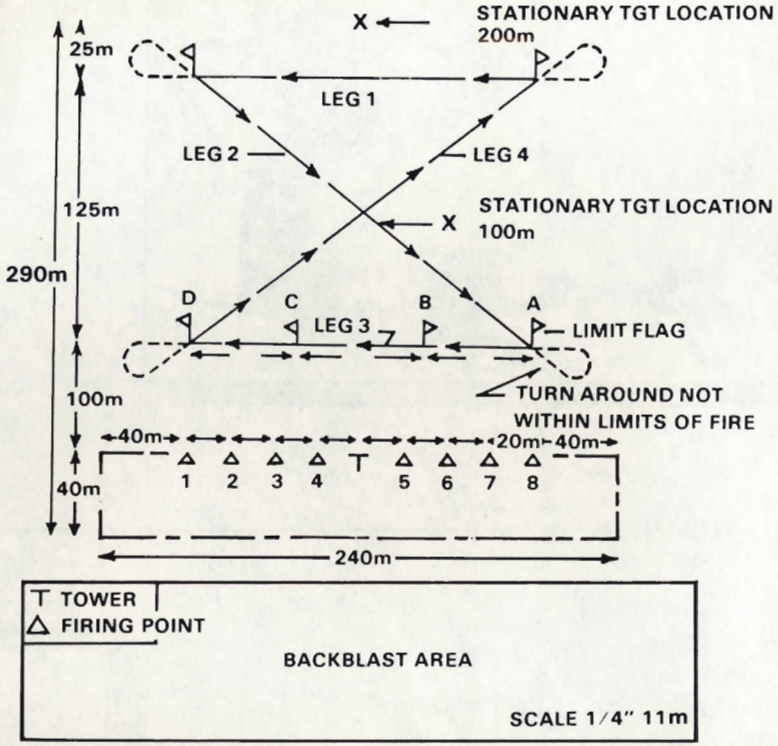
MOVING TARGET

RANGE	NUMBER ROUNDS	TARGET	POSITION
175 M	1	TANK MOVING	MODIFIED KNEELING
175-100M	1	TANK MOVING	MODIFIED KNEELING
100M	1	TANK MOVING	SITTING
50-175M	1	TANK MOVING	SITTING

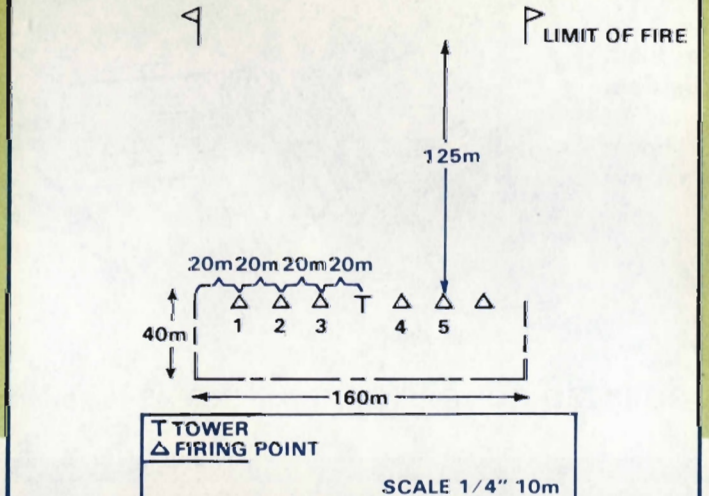
SEQUENCE OF FIRE—MOVING TARGET

FIRING POINTS	VEHICLE RUN 1ST	2D	3D	4TH	LEG NUMBER
1 & 2	1	4	2	3	
3 & 4	2	3	1	4	
5 & 6	3	2	4	1	
7 & 8	4	1	3	2	

MOVING TARGET RANGE FOR M190 SUBCALIBER FIRING



MAJOR CALIBER RANGE



APPENDIX C
TRAINING PROGRAM

Section I.
GENERAL

PURPOSE

This appendix provides guidance for developing, maintaining, and evaluating the soldier's proficiency with the LAW. It is recommended that all members of the platoon be proficient with the LAW.

TRAINING OBJECTIVES AND INTERMEDIATE TRAINING OBJECTIVES

TRAINING OBJECTIVE 1.

TASK: Each soldier will engage armor targets.

CONDITIONS:
Given, during daylight, on a suitable firing range:
M190 subcaliber device and seven M73 rockets **(three rockets for stationary target phase and four rockets for moving target phase).**
A series of stationary targets located from 75 to 250 meters from the firer. Targets will consist of frontal, flank, and oblique view.
A moving **(8-25 kmph) (5-15 mph)** target located from 75 to 200 meters from the firer. Target will be flanking.
NOTE: Frontal and oblique moving target aspects may be used when a manned moving tank is available.

CONDITIONS (CONT):
Given, during night, on a suitable firing range:
M190 subcaliber device and three M73 rockets.
Illumination provided by indirect fire.
A series of stationary targets located from 75 to 150 meters from the firer. Targets will consist of frontal, flank, and oblique view.

STANDARDS:
During daylight firing, the soldier must achieve:
Two target hits of three subcaliber rockets fired at stationary targets.
Two target hits of four subcaliber rockets fired at a moving target.
During night firing the soldier must achieve: One target hit of the three rockets fired.

INTERMEDIATE TRAINING OBJECTIVE (ITO) #1.

TASK: Each soldier must perform serviceability checks on the LAW.

CONDITIONS:
Given an expended LAW on a range.

STANDARDS:
The soldier will perform the following actions within 30 seconds:
Inspect the launcher to insure that there are no cracks, dents, or bulges.

STANDARDS (CONT):

Check to insure that the trigger arming handle is present and in the SAFE position.
Check the rubber boots around the trigger bar and detent for cracks, tears, or deterioration.
Inspect the right forward side of the launcher for the data information. The data information should include the words **"w/coupler"** on the first line.

ITO #2.

TASK: Each soldier will place the LAW into operation.

CONDITIONS:

Given an expended LAW on a range.

STANDARDS:

The soldier will perform the following actions, in sequence, within 30 seconds.
Remove the rear cover pull pin.
Release the rear cover and sling assembly.
Extend the launcher vigorously and check to insure that it is fully extended.
Check the backblast area.
Place the weapon on the shoulder.
Pull the arming handle out.
Sight.
Squeeze the trigger bar.

ITO #3.

TASK: Each soldier will demonstrate the standing position used to fire the LAW.

CONDITIONS:
Given an expended LAW, on a range, with a target.

STANDARDS:
The soldier will demonstrate the standing position by:
Facing the target and executing a half-right face.
Spreading the feet a comfortable distance apart.
Placing the launcher on the shoulder with the left hand directly under the forward portion of the launcher.
Placing the right elbow against the body for stability.

ITO #4.

TASK: Each soldier will demonstrate the kneeling position used to fire the LAW.

CONDITIONS:
Given an expended LAW, on a range, with a target.

STANDARDS:
The soldier will demonstrate the kneeling position by:
Kneeling on the right knee with the right thigh at a 90-degree angle to the line of aim.

STANDARDS (CONT):

Sitting back on the right heel.
Shifting weight forward.
Resting the upper left arm forward of the left knee.
Placing the right arm against the body.

ITO #5.

TASK: Each soldier will demonstrate the modified kneeling position used to fire the LAW at a moving target.

CONDITIONS:

Given an expended LAW, on a range, with a target.

STANDARDS:

The soldier will demonstrate the modified kneeling position by:
Facing the target and executing a half-right face.
Kneeling on the right knee with the upper part of the right leg vertical.
Pointing the left leg toward the target with the left foot at a right angle to and opposite the right knee. The left leg will form a right angle to the ground.
Holding the body erect with the left elbow under the launcher and the right elbow against the side.

ITO #6.

TASK: Each soldier will demonstrate the prone position used to fire the LAW.

CONDITIONS:

Given an expended LAW, on a range, with a target.

STANDARDS:

The soldier will demonstrate the prone position by:

Lying down at an angle of not less than 45 degrees to the line of fire in order to keep clear of the backblast area.

Keeping the back straight and the right leg directly on a line running through the right hip and right shoulder.

Moving the left leg as far as possible to insure comfort.

Keeping both heels on the ground.

Holding both elbows well below the launcher.

Holding the head as steady as possible with the right eye lined up with the sights.

Checking the backblast area to insure that no portion of the body is in the backblast area.

NOTE:

ITOs 3-6 ADDRESS THE PROCEDURES FOR A RIGHT-HANDED GUNNER. IF THE GUNNER IS LEFT-HANDED, THE PROCEDURES SHOULD BE REVERSED.

ITO #7.

TASK: Each soldier will identify enemy vehicles and weapons.

CONDITIONS:

Given a mockup, model, or photograph of the T62, T55, BMP, BRDM2, PT76, BTR-60PB, manpacked Sagger, AKM, PKM machinegun, RPG-7, and several NATO vehicles and weapons.

STANDARDS:

Identify each vehicle or weapon observed as being either friendly or enemy.

ITO #8.

TASK: Each soldier will estimate range.

CONDITIONS:

Given personnel, equipment, silhouettes, and/or vehicles, all stationary and either partially or fully exposed, at ranges from 50 to 250 meters, during daylight, in weather conditions where all objects are visible.

STANDARDS:

State the distance to each object with no more than a 20% error from the actual distance.

ITO #9.

TASK: Each soldier will apply lead.

CONDITIONS:

Given a sight template, a series of 10 silhouettes of Warsaw Pact armored targets which are presented in flank, frontal, and oblique views, and stated rates of movement and ranges. **(At least three different views, speeds, and ranges will be given.)**

STANDARDS:

The soldier must correctly apply lead 10 of 10 times, IAW chapter 5, pages 5-3 through 5-5.

ITO #10.

TASK: Each soldier will fire the M190 subcaliber device.

CONDITIONS:

During daylight, on a suitable firing range, given:

M190 subcaliber device and seven M73 rockets (three rockets for stationary target phase and four rockets for moving target phase).

A series of stationary targets located from 75 to 150 meters from the firer. Targets will consist of frontal, flank, and oblique view.

A moving (8-24 kmph) (5-15 mph) target located from 75 to 200 meters from the firer. Target will be flanking.

NOTE:

Frontal and oblique moving targets may be used when a manned moving tank is available.

CONDITIONS (CONT):

During night, on a suitable firing range, given:

M190 subcaliber device and three M73 rockets.

Illumination provided by indirect fire or searchlight.

A series of stationary targets located from 75 to 250 meters from the firer. Targets will consist of frontal, flank, and oblique view.

STANDARDS:

During daylight firing, the soldier must achieve:

Two target hits of three subcaliber rockets fired at stationary targets.

Two target hits of four subcaliber rockets fired at a moving target.

During night firing, the soldier must achieve: One target hit of the three rockets fired.

ITO #11.

TASK: Each soldier will prepare an antiarmor range card.

CONDITIONS:

Given an area of responsibility and a compass, during daylight.

STANDARDS:

Within 15 minutes after arrival in the position, the soldier will complete the range card to include the following items:

The LAW's position and distance from a readily identifiable terrain feature.

Unit designation.

STANDARDS (CONT):

Time and date of preparation.
Sector(s) of fire.
Dead space.
Location and distance to target reference points within range.
Maximum engagement range (250 meters).

TRAINING OBJECTIVE 2.

TASK: Each soldier will return the LAW to its carrying configuration.

CONDITIONS:

On a range, given an expended LAW.

STANDARDS:

The soldier will perform the following actions, in sequence, within 30 seconds.
Push the trigger arming handle in.
Remove the launcher from the shoulder.
Depress the barrel detent and collapse the launch tube, guiding the front and rear sights into position.
Replace the sling assembly.
Replace the rear cover pull pin.

TRAINING OBJECTIVE 3

TASK: Each soldier will perform immediate action on the LAW under simulated combat conditions.

CONDITIONS:

On a range in daylight, given instruction and a demonstration of three methods of target engagement.

STANDARDS:

The soldier must correctly identify each method and cite the advantages and disadvantages of each method of engagement IAW chapter 7.

Immediately resqueeze the trigger bar.

If the LAW still does not fire, try to place the trigger arming handle on SAFE.

Remove the launcher from the shoulder and partially collapse it.

Recock the launcher by reextending it, place on the shoulder, ARM, aim, and attempt to fire.

If LAW again fails to fire, resqueeze the trigger, try to return to SAFE, partially collapse launcher, and set aside.

TRAINING OBJECTIVE 4.

TASK: Each soldier will watch a firing demonstration and identify three methods used to engage targets with the LAW.

CONDITIONS:

On a range in daylight, given instruction and a demonstration of three methods of target engagement.

CONDITIONS:

Sequence – Gunner will fire three LAWs demonstrating the burst-on-target method of engagement.

Pair – Two gunners will fire a total of three LAWs demonstrating the pair method of engagement.

Volley – Three gunners will each fire one LAW, on command, at a target designated by a team/squad leader. Gunners will use the range estimation announced by the team/squad leader.

STANDARDS:

The soldier must correctly identify each method and cite the advantages and disadvantages of each method of engagement IAW chapter 7.

GENERAL TRAINING NOTES

Training is divided into four periods.

1. Period One is designed to train the soldier on the characteristics, nomenclature, and capabilities of the LAW; serviceability checks; placing the LAW into operation; firing positions; identifying targets; estimating range and applying lead; taking the LAW out of operation; misfire procedures and range card. Period One closes with the live fire demonstration of the sequence, pair, and volley methods of engagement.

2. Period Two consists of a proficiency examination in which the soldier is evaluated on performing serviceability checks, placing the LAW into operation, misfire procedures, applying lead to targets, and preparing a LAW range card.

3. Period Three will address safety precautions, loading and unloading the M190 subcaliber device, and instructional firing.

4. Period Four is conducted at night and consists of a safety orientation, firing the LAW using illumination, and night familiarization firing.

Time is allocated for evaluation after training. The performance evaluations are based on the standards set for training and will determine if the standards have been met. Section II of this appendix provides a proficiency examination.

TRAINING PROGRAM

1

PERIOD ONE (3½ hours)

Introduction to the LAW to include characteristics, nomenclature, capabilities, functioning, maintenance, and safety	10 minutes
Serviceability checks, to include a demonstration and practical exercise	10 minutes
Placing the LAW into operation, to include a demonstration and practical exercise	10 minutes
Firing positions, to include a discussion, demonstration, and practical exercise	20 minutes
Identifying armored targets, to include a discussion, demonstration, and practical exercise	25 minutes
Estimating range, to include a demonstration and practical exercise	15 minutes
Applying lead, to include a discussion, demonstration, and practical exercise	20 minutes
Taking the LAW out of operation, to include a demonstration and practical exercise	10 minutes
Misfire procedures, to include a demonstration and practical exercise	20 minutes
Methods of engagement, to include a discussion and demonstration	10 minutes
LAW range card, to include practical exercise	25 minutes
TOTAL	**175 minutes**

2 PERIOD TWO (1½ hours)

Orientation, instruction, breakdown, and movement to test stations	10 minutes
Testing (5 stations)	52 minutes
Movement time between stations	5 minutes
Critique	8 minutes
TOTAL	**75 minutes**

3 PERIOD THREE (1 hour)

Range and safety procedures	5 minutes
Loading and unloading the M190 subcaliber device with M73 rockets	5 minutes
Day familiarization firing	40 minutes
TOTAL	**50 minutes**

4 PERIOD FOUR (1 hour, night)

Range and safety procedures	5 minutes
Use of illumination and/or searchlight(s) when firing the LAW, to include a demonstration	10 minutes
Night instructional firing	35 minutes
TOTAL	**50 minutes**

SUMMARY OF TOTAL HOURS

Period One	3½ hours
Period Two	1½ hours
Period Three	1 hour
Period Four	1 hour
TOTAL	**7 hours**

The training program is based on performance-oriented training. (Time devoted to conference, explanation, and demonstration has been minimized.) It emphasizes learning by doing. Soldiers should practice the actions in the training objectives until they become proficient. Proficiency should be tested by a noncommissioned officer on a pass/fail or GO/NO GO basis. The evaluation tests in the proficiency examination in section II of this appendix may be used for this purpose. Failures should be retrained and retested. Those who have passed the evaluation tests may be used to assist in the training/evaluation of the soldiers experiencing difficulty. The recommended soldier/instructor ratio is 4:1.

The training program, as written, is compressed to minimum time. When scheduled, consideration must be given to poor weather, training equipment availability, and soldier/instructor ratio greater than 4:1. Any of these conditions will dictate additional time. Recommend normal scheduling of 7 hours.

Training Extension Course (TEC) Lesson Number 948-071-0005-F, "M72A2 Light Antitank Weapon, LAW," will provide excellent background training prior to training on a range. Recommend that this lesson be accomplished prior to the 7-hour training program.

This training program stresses range estimation without the use of the LAW sight and tests the soldier's ability to estimate range using visual estimation, pacing, and the LAW range card. These methods must be taught as a prerequisite to this training program.

No targets will be engaged at ranges beyond 250 meters for the stationary mode and 200 meters for the moving mode. The minimum and maximum ranges at which the LAW should be fired are 75 and 250 meters, respectively.

The training program should be conducted annually, and all platoon members should be proficient with LAW. The familiarization firing contained in the training program should also be conducted annually.

TRAINING AIDS. An empty launcher is the best training aid available. Other training aids may be constructed using the illustrations in this manual, but you are not limited to these. Use your imagination, or use aids listed in training aids catalogs. Local Training and Audiovisual Support Centers (TASC) should be able to furnish desired aids and devices.

The following training aids and equipment are recommended:

1	Expended LAW - 1 per soldier.
2	M190 subcaliber device - 1 per firing point.
3	LAW front sight template - 1 per soldier.
4	Chart depicting LAW front sight - 1 each.
5	Target silhouette sheet - 1 per soldier.
6	LAW backblast diagram - 1 each.
7	Armor models, plastic, 1:35 scale, depicting various Warsaw Pact and non-Warsaw Pact vehicles - 10 each.
8	Manned moving target tank (if available) or moving armor silhouette target - 1 each.
9	Salvage vehicles (to be used as targets).
10	Chalkboard - 2 each.
11	AN/PRC-77 radio w/equipment (to be used with manned moving target tank) - 2 each.
12	M203 grenade launcher (to fire illumination during night firing) - 1 each.
13	81-mm mortar (to fire illumination during night firing) - 1 each.
14	M551/M60A1 tank with xenon searchlight (to be used if the M203 grenade launcher and/or 81-mm mortar are not available to provide illumination during night firing) - 1 each.

NOTE:

If a manned moving target tank is used in conjunction with this training program, it must be removed from the range prior to the firing of the 66-mm HEAT rockets. The soldiers will be cautioned not to fire at the front or rear of a manned moving target tank. If a manned moving target tank is not used, the dimensions of the moving armor silhouette must be, as a minimum, 7.5 feet high and 20 feet long.

15	Public address system.

Training facilities and personnel.

Facilities:

Range **(with bleachers)** which is suitable for firing one LAW. Range should also be capable of supporting practical exercises and concurrent training stations. Page B-4 shows a schematic diagram and dimensions of a LAW range.

Personnel:

One instructor per four soldiers. Should more than four soldiers be taught by an instructor, the time to conduct the training program will be increased. A trained safety officer/noncommissioned officer must be present during all firing. Additionally, a trained 81-mm mortar crew and/or M551/M60A1 tank crew will be required for the conduct of night firing.

AMMUNITION	M73 35-mm rockets - 10 per soldier. 66-mm HEAT rockets - 10 for demonstration firing (one to use in the introduction portion of the program and nine to demonstrate the methods of engagement). M301A3 81-mm mortar illumination rounds - 20 each. 40-mm M203 grenade launcher illumination rounds - 20 each.

For additional information on how to conduct a training program, use FM 21-6, How to Prepare and Conduct Military Training. FM 21-6 provides detailed guidance on the preparation of lesson plans.

LAW SUBCALIBER FIRING TABLES

TABLE 1 - STATIONARY

ROUND	RANGE (M)	AMMO	TARGET
1	100	M73	TANK/APC HULL
2	150	M73	TANK/APC HULL
3	200	M73	TANK/APC HULL

TABLE 2 - MOVING

4	175	M73	MANNED MOVING TARGET TANK OR MOVING ARMORED SILHOUETTE
5	200	M73	MANNED MOVING TARGET TANK OR MOVING ARMORED SILHOUETTE
6	150	M73	MANNED MOVING TARGET TANK OR MOVING ARMORED SILHOUETTE
7	125	M73	MANNED MOVING TARGET TANK OR MOVING ARMORED SILHOUETTE

NOTES:

1. Ranges to targets will not be announced to the gunners.
2. If a manned moving target tank is used, soldiers will be told not to fire at the front or rear of the vehicle.

TABLE 3 - NIGHT FIRING (STATIONARY TARGETS).

ROUND	RANGE (M)	AMMO	TARGET
8	100	M73	TANK/APC HULL
9	125	M73	TANK/APC HULL
10	100	M73	TANK/APC HULL

Section II.
PROFICIENCY (PERFORMANCE) EXAMINATION

TEST 1

PERFORM SERVICEABILITY CHECKS ON THE LAW.

TASK:

(Tester will read to soldier.) "At this station, you are required to perform serviceability checks on the LAW. You have 30 seconds to perform the serviceability checks."

CONDITIONS:

The soldier should be tested in a clear area where the instructor can observe his actions individually. An expended **(collapsed)** launcher with one or more faults will be placed on the ground in front of the soldier.

Examples of faults are:

- **Trigger arming handle missing.**
- **Rubber boots torn.**
- **Rubber boot missing.**
- **Launcher cracked.**
- **Launcher dented.**

STANDARDS:

1	**The launcher has no cracks, dents, or bulges, or defects are reported to the tester.**
2	**The trigger arming handle is present and in the SAFE position, or defects are reported to the tester.**
3	**The rubber boots around the trigger bar and barrel detent are not cracked, torn, or deteriorated, or defects are reported to the tester.**

4	**The right forward side of the launcher has the data information, including the words "w/coupler" on the first line, or missing information is reported to the tester.**

TEST 2
PLACING THE LAW INTO OPERATION.

TASK:

(Tester will read to the soldier.) "At this station,you will have 30 seconds to place the LAW into operation."

CONDITIONS:

The soldier should be tested in a clear area where the instructor can observe his actions individually. An expended (collapsed) launcher will be placed on the ground in front of the soldier.

STANDARDS:

1	**Remove the rear cover pull pin.**
2	**Release the rear cover and sling assembly.**
3	**Extend the launcher vigorously and check to insure it is extended fully.**
4	***Check the backblast area.**

5	**Place the launcher on the shoulder.**
6	***Pull the arming handle out.**
7	**Aim.**
8	**Squeeze the trigger bar.**

*NOTE:

The backblast area must be checked before the arming handle is pulled out. These are the only two steps that must be performed in sequence. Failure to perform these two steps at the proper time will cause the soldier to fail the task.

TEST 3

PERFORM IMMEDIATE ACTION FOR A LAW THAT HAS FAILED TO FIRE IN A SIMULATED COMBAT SITUATION.

TASK:

(Tester will read to the soldier.) "At this station, you are required to perform immediate action on the LAW for a combat situation. All tasks must be performed in the proper sequence for you to successfully pass this station. You have 30 seconds to perform combat immediate action."

CONDITIONS:

The soldier should be tested in a clear area where the instructor can observe his actions individually. The launcher will be extended and on the soldier's shoulder pointed downrange. The instructor will tell the soldier he has experienced a misfire.

STANDARDS:

1	**Immediately resqueeze the trigger bar.**

2	**Try to push the trigger arming handle in, take the launcher off the shoulder, keeping it pointed up and downrange.**
3	**Depress the barrel detent and partially collapse the launcher.**
4	**Reextend the launcher.**
5	**Place the launcher on the shoulder.**
6	**Pull the trigger arming handle out, aim, and attempt to fire.**
7	**If the launcher still does not fire, resqueeze the trigger bar.**
8	**Push the trigger arming handle in, take the launcher off the shoulder, keeping it pointed up and downrange.**
9	**Partially collapse the launcher and discard.**

TEST 4

APPLY LEAD WHEN SIGHTING ON A MOVING TARGET WITH THE LAW.

TASK:

(Tester will read to the soldier.) "At this station, you are required to apply the proper lead to moving targets with the LAW. You have 3 minutes to correctly apply the lead on 10 of 10 targets."

CONDITIONS:

The soldier should be tested in a clear area where the instructor can observe his actions individually. The soldier will be given a front sight template and a series of 10

silhouettes of Warsaw Pact armored targets which are presented in flank, frontal, and oblique views, with stated rates of movement and ranges. At least three different views, speeds, and ranges will be given.

STANDARDS:

1	The soldier must correctly apply lead 10 of 10 tries.

TEST 5
PREPARE AN ANTIARMOR RANGE CARD.

TASK:

(Tester will read to the soldier.) "At this station, you are required to prepare an antiarmor range card. The limits of your sector(s) are marked on the sheet of paper I will give you. You have 15 minutes to complete the range card."

CONDITIONS:

Given an area of responsibility, a sheet of paper showing sector limits, a pencil, and a compass, during daylight.

STANDARDS:

Within 15 minutes after arrival in the position, the soldier will complete the range card to include the following items:

1	**The LAW position and distance from a readily identifiable terrain feature.**
2	**Unit designation.**
3	**Time and date of preparation.**
4	**Sector(s) of fire.**
5	**Dead space.**
6	**Location and distance to target reference points within range.**
7	**Maximum engagement range (250 meters).**

APPENDIX D
TRAINING DEVICE

INTRODUCTION

The M190 subcaliber launcher and the M73 subcaliber rocket together make up the training device for the LAW. This device was developed to enhance instruction by reducing the cost of training and allowing more firing at a lower cost.

GENERAL CHARACTERISTICS

The training device is a lightweight, shoulder-fired rocket launcher used with a subcaliber rocket, simulating the LAW. Although it is a smaller caliber, and is shorter and lighter than the tactical rocket, the subcaliber rocket simulates the noise, smoke, blast, and flight trajectory of the tactical rocket.

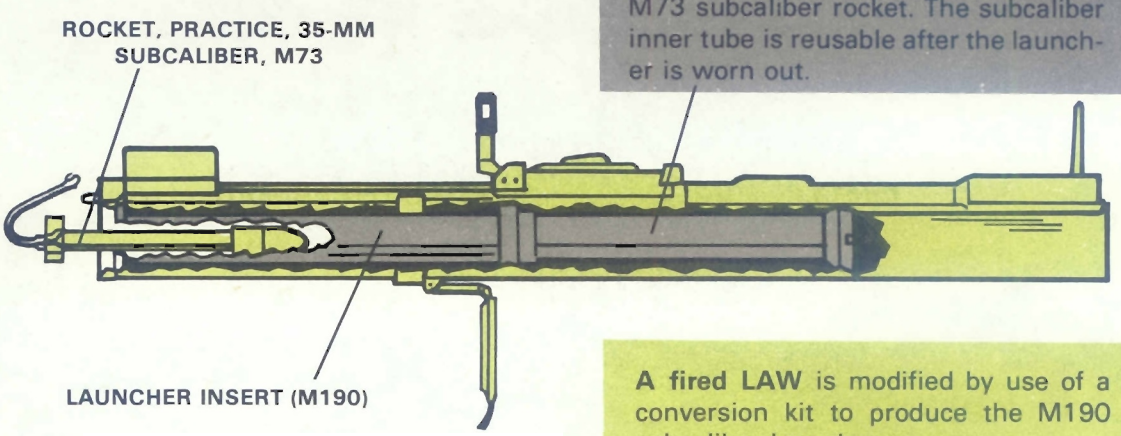
DESCRIPTION

GENERAL

On the outside, the training device looks very much like the LAW.

LAUNCHER, SUBCALIBER, M190
(CUTAWAY VIEW)

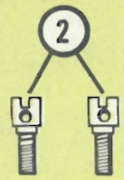
The M190 subcaliber launcher has a subcaliber inner tube for launching the M73 subcaliber rocket. The subcaliber inner tube is reusable after the launcher is worn out.

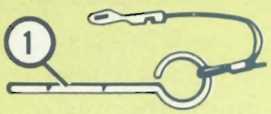


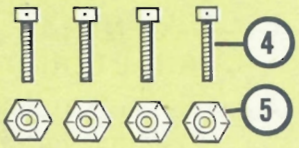
A fired LAW is modified by use of a conversion kit to produce the M190 subcaliber launcher.

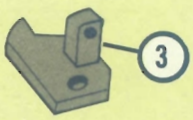
M190 CONVERSION KIT

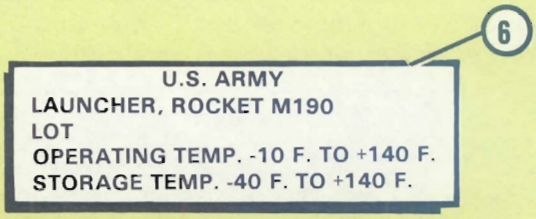
1	1 Ea PIN ASSEMBLY, REAR DOOR P/N 9256080
2	2 Ea SCREW, REAR DOOR P/N 9256081
3	1 Ea DOOR, REAR P/N 9256081
4	4 Ea SCREW, MACHINE, FILL HD P/N MS 35265-231
5	4 Ea NUT, SELF-LOCKING P/N MS21083N06
6	1 Ea LABEL (M190) 9256085
7	M190 INNER TUBE ASSEMBLY (NSN 1340-00-420-7999)

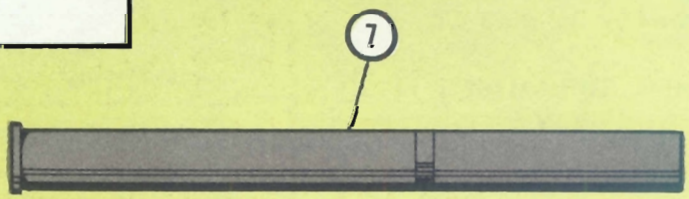




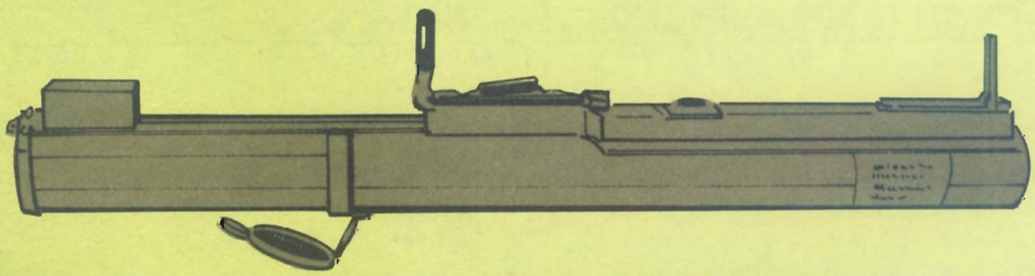






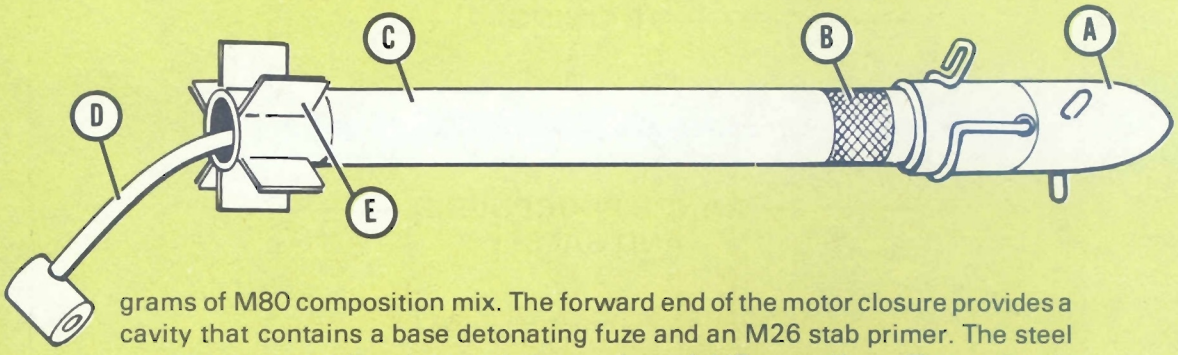


TO CONVERT ONE EXPENDED M72A2/M72A1
TO A M190 SUBCALIBER DEVICE



M73 SUBCALIBER ROCKET

The M73 subcaliber rocket is a 35-mm subcaliber rocket consisting of a detonating head **(A)**, a motor closure **(B)**, a rocket motor **(C)**, and an igniter assembly **(D)**. The detonating head, made of rigid, molded plastic, contains 1.5



grams of M80 composition mix. The forward end of the motor closure provides a cavity that contains a base detonating fuze and an M26 stab primer. The steel motor case contains three tubular grains of M7 propellant. The rocket is stabilized by the six molded plastic fins **(E)**.

ROCKET FUNCTIONING

The M73 subcaliber rocket is launcher in the same manner as the tactical rocket. When the rocket head strikes the target, the spotting head is set off, and it produces a flash, noise, and white smoke.

TABULATED DATA

ROCKET, PRACTICE, 35-MM SUBCALIBER, M73.	
DIAMETER	3.51 CM
WEIGHT	154 G
LENGTH	22.48 CM
RANGE	10 to 250 METERS
PROPELLANT CHARGE 3 TUBULAR GRAINS OF M7	
SPOTTING HEAD CHARGE 1.5 GRAMS OF COMPOSITION MIX M80	

LAUNCHER, ROCKET, PRACTICE, M190.		
DIAMETER	12.45 CM	(4.9 IN)
WEIGHT	2.26 KG	(5.02 LB)
LENGTH:		
COLLAPSED	64.26 CM	(25.3 IN)
EXTENDED	89.9 CM	(35.4 IN)
DIAMETER OF ROCKET TUBE 3.56 CM		
SIGHTS OPEN, TEMPERATURE COMPENSATING		

LAUNCHER CONTROLS AND SIGHTING EQUIPMENT

Same as the LAW (chapter 2).

TRAINING

Same as the LAW (chapter 3).

RANGE PROCEDURE AND SAFETY

Same as the LAW (chapter 6).

TECHNIQUE OF FIRE

Same as the LAW (chapter 7).

IMMEDIATE ACTION WITH THE M190 SUBCALIBER LAUNCHER

Same as the LAW (chapter 2).

CAPABILITIES

The training device can be used against all solid stationary or moving targets. Because the subcaliber rocket can penetrate 0.124 inches of steel plate or 8 inches of soft wood, it is recommended that the target be constructed of 3/16-inch steel plate backed by 3/4-inch plywood.

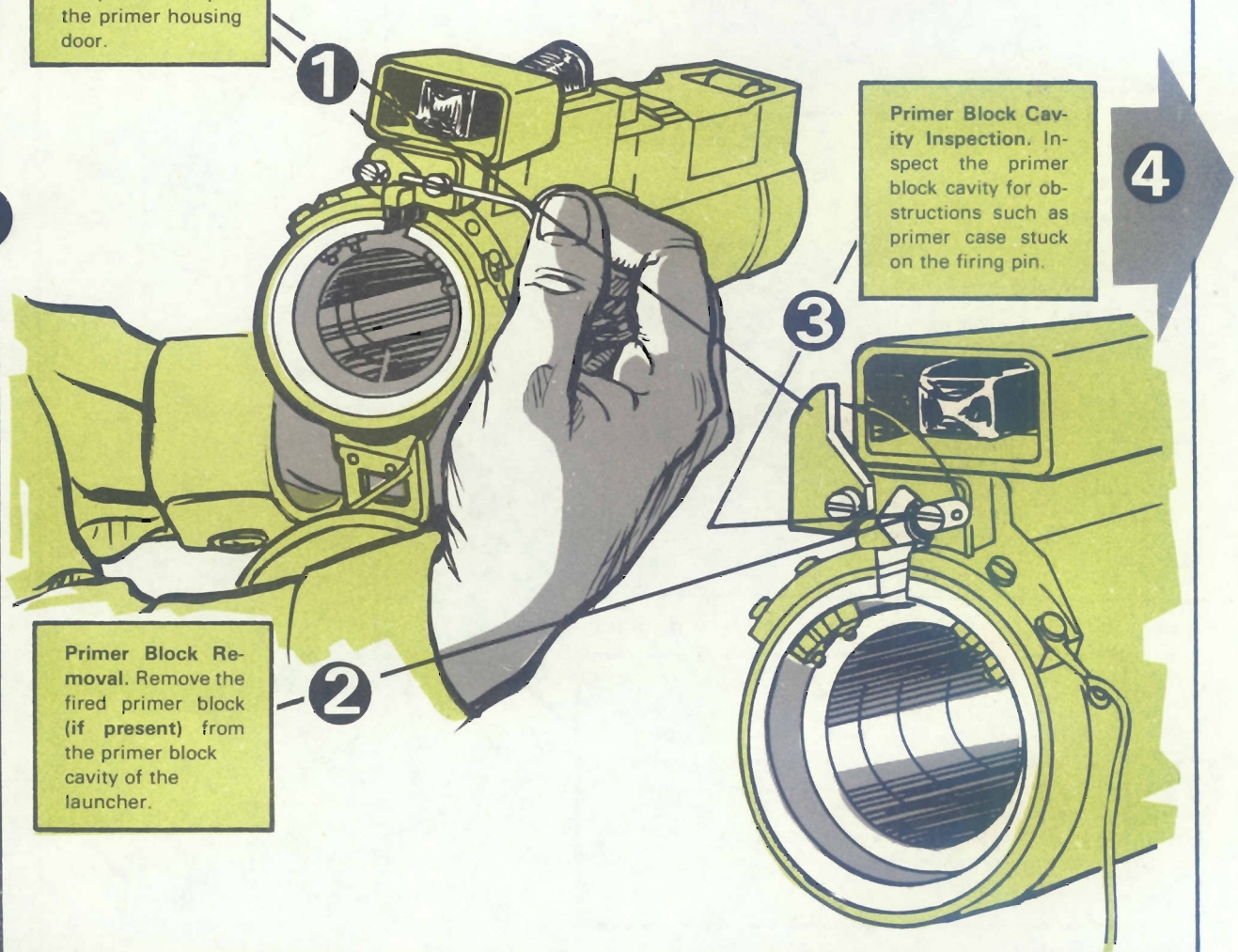
The training device can be used in all training phases, from a fixed firing line to simulated tactical situations, such as "trainfire" type operations.

LOADING INSTRUCTIONS

Load the M73 subcaliber rocket into the M190 subcaliber launcher using the following procedures:

CAUTION
THE FOLLOWING PROCEDURES MUST BE PERFORMED WITH THE REAR COVER OPEN, THE SLING ASSEMBLY OFF, AND THE LAUNCHER COLLAPSED.

LOADING THE M190 SUBCALIBER LAUNCHER

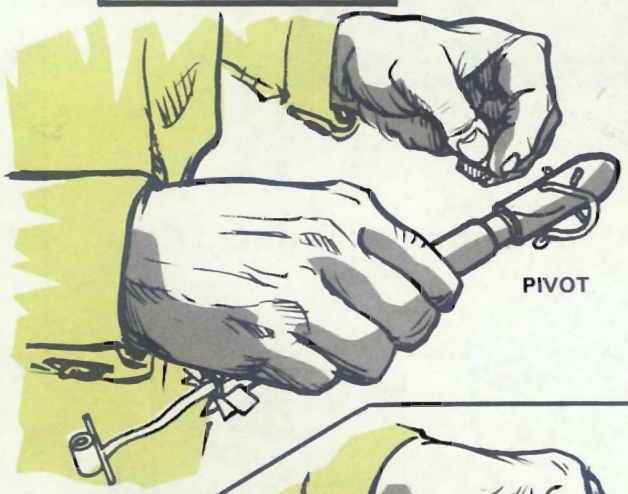


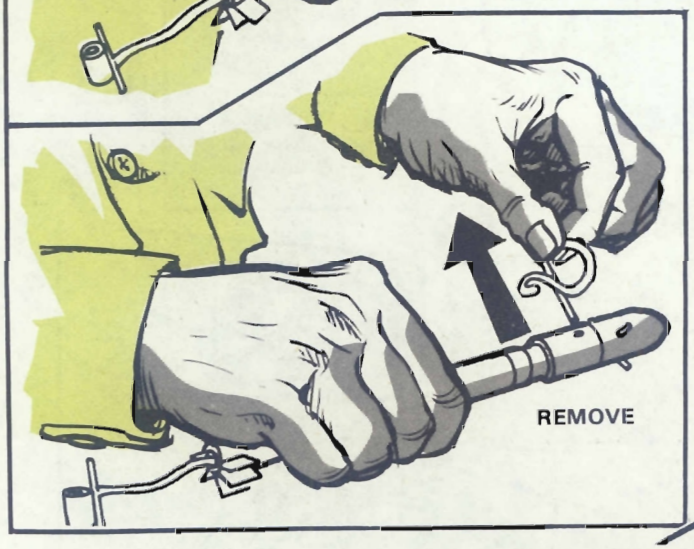
Primer Housing Lockpin Removal. Twist and remove the primer housing lockpin and open the primer housing door.

Primer Block Removal. Remove the fired primer block **(if present)** from the primer block cavity of the launcher.

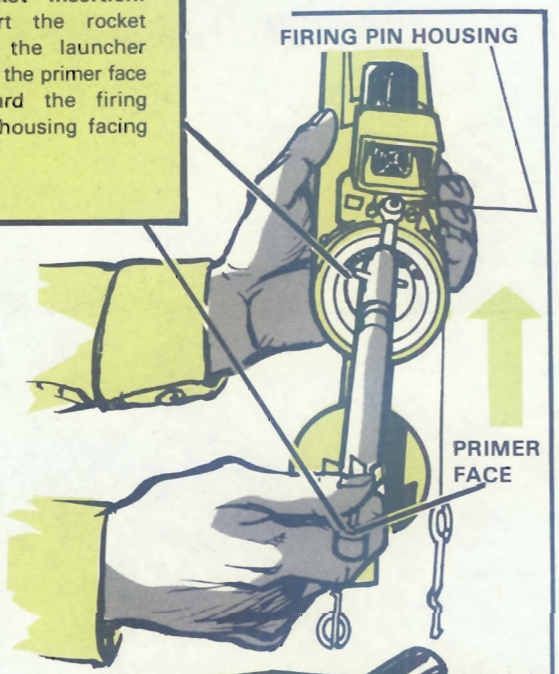
Primer Block Cavity Inspection. Inspect the primer block cavity for obstructions such as primer case stuck on the firing pin.

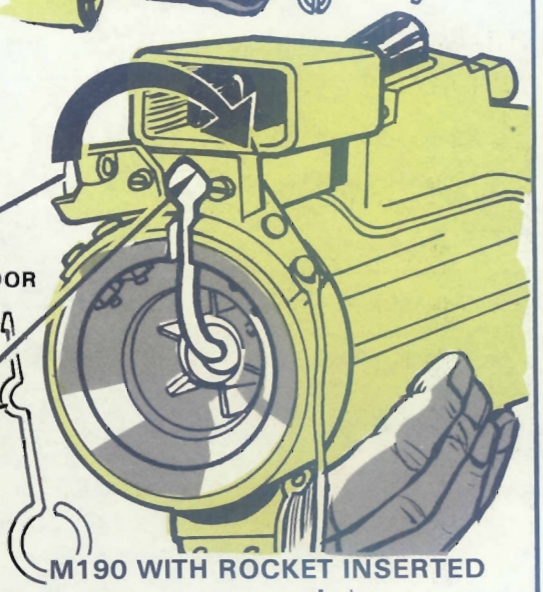
4 **Safety Clip Removal.** Pivot and remove the safety clip from the rocket.





5 **Rocket Insertion.** Insert the rocket into the launcher with the primer face toward the firing pin housing facing up.





6 **Primer Block Insertion.** Guide the primer block into the primer block cavity, with the primer toward the front of the launcher. Close the primer housing door, insert the primer housing lockpin across the primer housing door and twist to insure a springtight fit. The primer housing door **must** fit snugly.

FIRING

After the subcaliber launcher has been loaded, it may be retained closed, or it can be extended and fired. In either case, the procedures are identical to those for the LAW.

CAUTION

THE M73 SUBCALIBER ROCKET HAS AN OPERATING TEMPERATURE OF -10 DEGREES F TO +140 DEGREES F. DO NOT ATTEMPT TO FIRE THE ROCKET WHEN THE TEMPERATURE IS BELOW -10 DEGREES F OR ABOVE +140 DEGREES F.

UNLOADING THE M190 SUBCALIBER LAUNCHER

UNLOADING INSTRUCTIONS

KEEP LAUNCHER TRAINED ON TARGET

RETURN ARMING HANDLE TO SAFE.

- REMOVE WEAPON FROM SHOULDER KEEPING IT POINTED DOWNRANGE.
- PARTIALLY COLLAPSE LAUNCHER.
- REMOVE PRIMER HOUSING LOCKPIN.
- OPEN PRIMER HOUSING DOOR.
- REMOVE PRIMER FROM HOUSING.
- REMOVE ROCKET.
- REPLACE SAFETY CLIP ON THE ROCKET.
- PLACE ROCKET IN ORIGINAL CONTAINER.

OPERATOR

CONVERTING LAW LAUNCHER TO M190 SUBCALIBER DEVICE

GENERAL

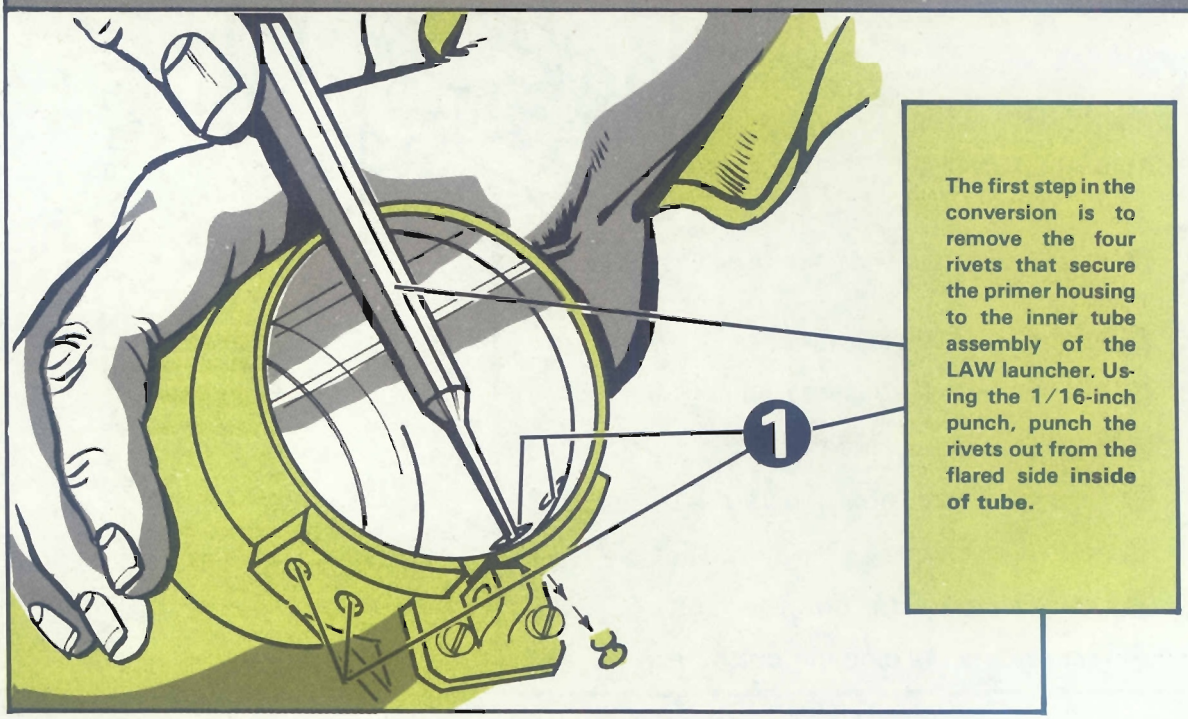
M190 subcaliber launchers are made by converting fired LAW launchers. The conversion can be done by the unit armorer without special training or special tools. If parts of the launcher break, the M190 inner tube assembly is removed from the damaged launcher and placed in a serviceable launcher.

> **NOTE:**
> Launchers which have nozzle wraps are not suitable for converting to subcaliber devices. These launchers have the words "w/coupler and wrap" in the nomenclature on the data plate.

SUPPLY

The subcaliber launcher consists of an expended LAW launcher, M190 inner tube assembly, and the conversion kit (**see page D-2**). The items required to convert a fired LAW launcher to the subcaliber launcher can be requisitioned through normal channels as conversion kit, **M190**, with inner tube assembly (**NSN 1340-00-420-7999**).

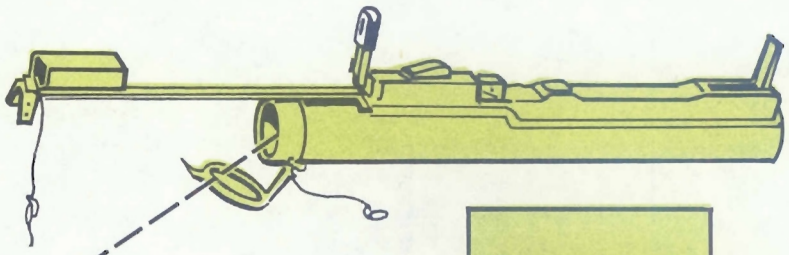
INSTALLATION OF M190



The first step in the conversion is to remove the four rivets that secure the primer housing to the inner tube assembly of the LAW launcher. Using the 1/16-inch punch, punch the rivets out from the flared side inside of tube.

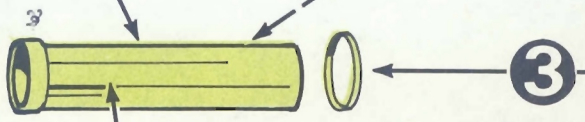
Pull the inner tube (A) out of the LAW launcher.

2



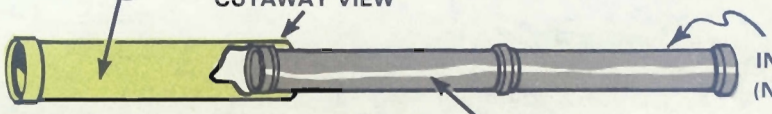
Remove the "O" ring on the outside of the inner tube from the LAW launcher and discard it.

3



A

CUTAWAY VIEW



SUBCALIBER INNER TUBE ASSEMBLY (NSN 1340-00-420-7999)

Place the inner tube (A) over the rear of the subcaliber tube and telescope the entire assembly into the closed position.

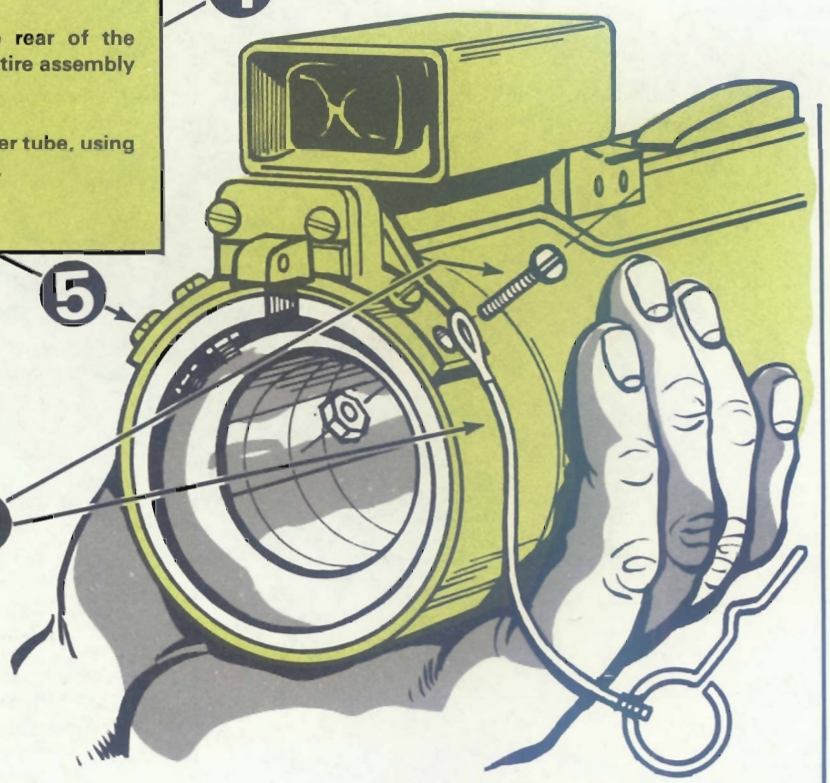
Secure subcaliber tube inside the inner tube, using four screws and nuts supplied in kit.

4

5

Tighten all but the screw and nut on the far right. Place terminal loop of primer housing lockpin cord under far right screw head and secure.

6



INSTALLATION OF ROTATING PRIMER HOUSING DOOR

Remove the rear door of the LAW launcher by removing two retainer screws and dispose of the rear door and retainer screws in accordance with Defense Disposal Manual 4160.21-M or AR 755-2.

DISPOSE OF

Apply a light coat of loctite cement (NSN 8030-00-981-2336) to the threads of the two studs from the kit #P/N 9256081 and screw the studs into the holes from which the retaining screws were removed.

DOOR, REAR
P/N 9256081

With an expended primer block inserted into the primer housing cavity, secure the rear door from the conversion kit in place with the rear door pin.

Adjust the two studs until the rear door presses slightly and evenly against the aft end of the primer block, when the rear door pin is inserted and rotated to its tightened position.

Apply the label from the installation kit 3 inches from the forward end on the right-hand side of the launcher so that it covers the old identification label.

FM 23-33

20 APRIL 1979

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

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